REPUBLIC OF BOTSWANA

NATIONAL DEVELOPMENT PLAN 1970–75

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HIS EXCELLENCY SIR SERETSE KHAMA K.B.E., B.A., LL.D.
PRESIDENT OF THE REPUBLIC OF BOTSWANA

Foreword

This, our third published Plan since Independence, illustrates the permanent importance Botswana attaches to planning. Our commitment to planning springs from the recognition that our resources are limited, and must therefore be carefully allocated. We are at a critical stage in our development. Decisions taken in the current plan period will affect the quality of life in Botswana for generations. We must therefore be sure that we understand the choices before us and make the right decisions.

These decisions must be understood by everyone, not only by officials. They must enjoy the support of our people. Planning in Botswana is not a remote affair; it involves participation at all levels, from the Economic Advisory Council to the Village Development Committees. Both this version of the Plan and a popular summary will circulate widely throughout Botswana. To ensure that participation is meaningful and that planning decisions are effectively implemented, necessary adjustments to our local government machinery will be made. We are also improving communications between central government agencies in the capital and in the districts and ensuring better co-ordination between central government agencies operating at district level. We are seeking to improve the relationship between central government and local government institutions in the interests both of democracy and administrative efficiency. These reforms are all designed to ensure that the people of Botswana participate to the greatest practicable extent in the formulation and implementation of government policy, and that the policies of their elected government are fully understood by them.

Planning is choosing. There are so many things we should like to do for our people, to improve living standards. Because Botswana is such a poor country, we can undertake only a few projects and the task of choosing is that much harder. Do we provide more schools or more hospitals? Do we improve hospitals in towns or concentrate on extending preventative medical services in the rural areas? Do we improve roads or water facilities? Do we increase the number of primary school places or train more teachers? We also have to decide where the facilities which we can afford to provide should be located. And, here as elsewhere, we have to reconcile the demands of national economic growth with the need to maintain national unity by spreading benefits as evenly as possible throughout the country. We must, if our planning is to be successful, take social and political considerations into account. Above all we must be constantly aware of the needs and wishes of the people themselves. Genuine development and continuous economic expansion over a period depend on conditions of social and political stability. Pragmatism and principle alike dictate that our policies take fully into account the demands of social justice.

The greatest challenge ahead of us is undoubtedly that of rural development. The transformation of rural communities everywhere presents an intractable problem. In Botswana the task is not assisted by our harsh climate. Yet if the majority of Batswana are to benefit from the dramatic increase in the pace of development which has taken place since Independence, this problem must be solved. Mining and the revenues which we expect to accrue from mining activity have transformed our economic prospects.

Progress in our countryside will be less obvious and dramatic than in the mining sector and in the capital, but it should not be assumed that we are neglecting rural development. In fact the reverse is the case. Rural change inevitably comes slowly and involves great efforts on the part of the people themselves. Botswana's policy of self-reliance has in many places already greatly improved the standard of services available. Our people have built for themselves clinics, schools, and latrines. Now these efforts must be expanded and diversified to include projects which help to increase production and raise rural incomes.

Self-reliance must not be regarded as a policy only for the rural areas. Town dwellers are already privileged. Urban education, water supplies, sanitary conditions, and many other services are all of a higher standard than in the rural areas. Further improvements in urban conditions must come as far as possible as a result of the efforts of the town-dwellers themselves, not at the expense of our rural population, which would be the case if investment were diverted from the countryside.

Self-reliance as a national principle does not simply mean mobilising local resources in self-help schemes. It means mobilising all Botswana's resources for Botswana's development, including of course its financial resources. The Plan sets out policies designed to achieve this. Equally important, self-reliance means preparing Batswana for positions of responsibility in the public and private sectors alike, and ensuring that standards of efficiency and productivity are not only maintained but improved. I have told the civil servants that I would judge our

localisation programme to be successful "when we have not only replaced expatriates with local officers, but when these local officers are carrying out their duties as energetically and competently as their predecessors, if not more so." Thanks to the progress already achieved in localising the public service, the implementation of this Plan, will be in the hands of local officials to a much greater extent than was the case with its predecessors.

The achievement of the Plan's objectives is in the hands of all Batswana. Success during the plan period will depend on the efforts of our farmers and workers. And we must realise that, if we are to continue to preserve our self-respect and to attract the aid which we need to sustain our independence, we must demonstrate in all practical ways open to us the reality of our commitment to development.

SIR SERETSE KHAMA
PRESIDENT OF THE REPUBLIC OF BOTSWANA

Introduction

The National Development Plan is a rolling plan; we do not have a First Five Year Plan, Second Five Year Plan and so on. The National Development Plan is being constantly reviewed and revised as newer and better information comes to hand. Every two to three years a new Plan document is published which sets out clearly the position reached.

This Plan document is the third which has been published since Independence. In Part I the policies and objectives which are to guide the Government effort over the next five years are described in detail sector by sector. In Part II the individual projects to be undertaken by Government during the Plan period are specified. Where necessary the Plan provides national guide lines for a longer period.

Although I have explained the living nature of the Plan, I do not wish to imply that the contents of this document should be treated as lacking authority. On the contrary, it is intended that both Government officers and private individuals and organisations should be guided by the policy statements contained therein, and make every effort to ensure that national objectives are achieved. Above all it must be appreciated that this Plan is a *National* Plan, and not simply for use in Government departments. The statutory corporations and private companies should read the Plan carefully, too, so that everyone in Botswana is familiar with our national policies.

A very large part of the expenditure proposed in this Plan is dependent on finance being raised from friendly Governments and agencies abroad. For the first time I can state confidently that Botswana can achieve budgetary self-sufficiency within the span of the Plan. This achievement will be accompanied by very rapid economic growth. In this Plan it is projected that Gross Domestic Income will rise by some 15% p.a. This rate expansion will place considerable strain on the Government Administration and will require skill and dedication from the few trained Batswana who will be called upon to manage the development programme. Particular emphasis will be given to training.

I wish here briefly to mention the basic political principles which have determined the detailed policies and objectives described in the Plan. From the start the Democratic Party has espoused pragmatism and the Democratic Party Government has a proven record of practical achievements. But the faster we move forward the clearer we must see ahead. Hence the need to define clearly the principles upon which decisions are to be based.

Firstly, we wish to strive for *social justice*; secondly, we are concerned to provide where-ever possible *equality of opportunity;* thirdly, we intend to use *persuasion rather than compulsion* in order to achieve change in a democratic and constructive way. These three objectives are rooted in our four cardinal principles of *democracy*, *development*, *self-reliance* and *unity*.

Thus economic and technical arguments strongly favour land reform. But reform must be accompanied by popular consensus and social justice. People must be *persuaded* to adopt new ideas towards land and cattle, not forced. And the reforms which are implemented must not favour the wealthy and deprive the poor. On the contrary the interests of the small man must always be paramount. In the modern sector, the townsfolk must not be allowed to benefit excessively from the investment which the Government makes in social services to the neglect of the villages.

If asked to state our economic goals briefly, I would mention the following as most important:

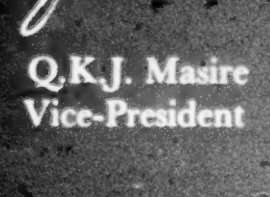
(i) to secure the fastest possible rate of economic growth in a manner designed to raise the living standards of the great mass of the inhabitants of Botswana;

(ii) to achieve budgetary self-sufficiency in the shortest possible time consistent with rapid economic growth;

(iii) to maximise the number of new job opportunities;

(iv) to promote an equitable distribution of income, in particular, by reducing income differentials between the urban and the rural sectors through rural development.

In our strategy for development described in Chapter II, special emphasis is placed on manpower development, rural development, family welfare and the conservation of our natural resources. It is in these fields that the nation faces the greatest challenges and where the opportunities, if grasped, will yield the greatest dividends.

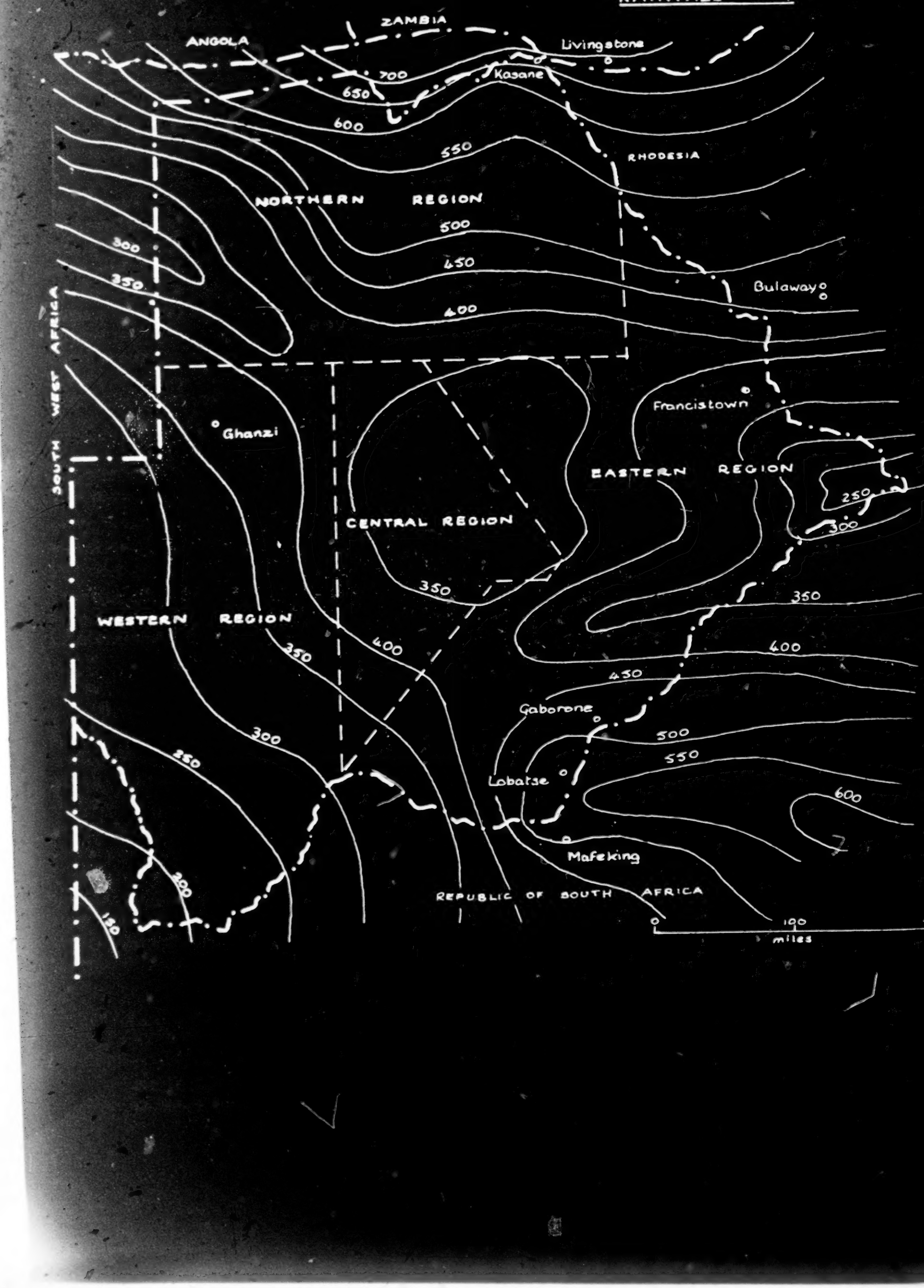


Q.K.J. Masire
Vice-President

PART I

Policies and Objectives

RAINFALL MAP



Chapter I – The Economy

Physical Features:

1.1 The principal features of Botswana are its physical size, aridity and low density of population: With almost the same area as Kenya, it comprises a vast dry tableland with an average annual rainfall of 18 inches. The country is entirely landlocked, bounded by Rhodesia, South Africa, South West Africa, the Caprivi Strip and Zambia. The main supply route is the railway line joining Bulawayo in Rhodesia to Mafeking in South Africa. The line of rail runs north-south through eastern Botswana where over 80 per cent of the population lives.

1.2 The east of the country is broken by a series of rocky hills and in the north is widely covered by mopane bush. The rainfall is sufficient to produce good pasturage and this fact, combined with the presence of underground water, makes eastern Botswana an excellent cattle rearing region. In addition the rainfall is normally sufficient to permit arable farming: the main crop is grain sorghum but rainfed maize, beans and other crops are also grown successfully, especially in the south.

1.3 The Kalahari occupies a great expanse in the centre and the south of the country. The sandveld is closely covered with thorn bush and grass; surface water is absent except periodically in occasionally clay floored depressions known as pans. Where permanent supplies of water can be obtained from boreholes cattle ranching is possible. This is true, for example, on the Ghanzi plateau in the west where a number of freehold farms have been established. The central Kalahari is inhabited by small bands of Bushmen and large numbers of wildlife.

1.4 In the north-western corner of Botswana, called Ngamiland, the Okavango River forms a swampy delta covering 6,500 square miles. It is estimated that the average inflow of water from Angola is 13,000 cusecs, representing a vast untapped water resource. Although part of the Okavango Delta is tsetse infested, it is estimated that some 50,000 acres would be suitable for irrigation farming if the water flow could be controlled. The swamps support great herds of buffalo, hippopatami and other wild animals which together with the game in the Kalahari and Northern Botswana represent one of Africa's largest reservoirs of wild animals and constitute an important tourist attraction.

1.5 In northern Botswana the Kalahari gives way to belts of indigenous forest and dense bush sustained by the higher rainfall of the region. Valuable stands of hard wood cover extensive areas. The availability of ground water resources, and the existence of suitable soil and reliable rainfall in the north-eastern corner of the region indicate favourable development potential. To the south of this area lies the Makarikari depression, a vast salt pan containing valuable brine deposits.

1.6 The climate of Botswana is tropical, subtropical and temperate depending on the region. Summers, the rainy season, are hot although tempered at times by north-eastern breezes; winters are dry with wide diurnal temperature variations, occasionally giving rise to frosts.

Population and Employment:

1.7 A census of population held in 1964 showed that the country's total inhabitants numbered 543,105, comprising 535,373 Africans, 3,921 Europeans, 3,489 persons of mixed race, and 382 Asians. The 1970 population is estimated to be 648,000. Overall population density is 3 persons per square mile, and it is believed that the growth in population is about 3 %.

1.8 The majority of the population has a pastoral and agricultural existence, living in central villages, the largest being Serowe (35,000), Kanye (35,000) and Molepolole (31,000). The main business centres are the capital Gaborone (estimated population 14,000), Lobatse (9,000) and Francistown (18,000) all situated along the line of rail.

1.9 The 1967/68 Labour Census and the 1967/68 Agricultural Sample Survey indicate that number of workers employed were as shown in Table I – 1:

Table 1 – 1 Numbers of Workers and Wage Bill by Sector 1967/68

Activity	*Number of Workers*	*Total Wage Bill (R)*	*Average Yearly Wage (R)*
Traditional Agric.	192,590	n.a.	n.a.
Extractive Industries	8,485	976,086	115
Manufacturing	1,550	756,920	488
Construction	1,566	518,086	331
Electricity & Water	187	124,715	667
Trade and Hotels	5,175	1,589,240	307
Communications	1,474	1,178,216	799
Financial Institutions	134	227,267	1,696
Public Administration	5,970	3,769,409	631
Services	3,607	1,896,152	526
	220,738	11,036,091*	392*

*excluding traditional agriculture.

Of those counted as employed in traditional agriculture, some 42,000 are under 15 years of age, and all but 11,659 are members of farm households and cannot therefore be regarded as employees. Thus the vast majority of those engaged in agriculture are working on the family holding and most

will be only be partially occupied. The average wage in full time agriculture employment is under R80 p.a. This compares with an average wage of R509 in other activities, underlining the disparity in income levels between the rural and urban sectors.

1.10 In addition to the persons employed in Botswana, substantial (but unrecorded) numbers obtain employment in South Africa. The South African mines alone recruited 25,955 Batswana in 1968 and a similar number were probably employed in other sectors. Tentative estimates suggest that the cash earnings of migrant labour is in the region of R8 million of which possibly R2 million is remitted to Botswana. Thus total wage employment (excluding the traditional agricultural sector) at home and abroad is approximately one fifth of the adult labour force (i.e. those between 15 and 60 years of age). From this it would appear that one in nine of the population are wage earners. The mobilisation and training of this most important resource – manpower – is dealt with in detail in Chapter IX.

1.11 There are no trends to indicate past rates of growth in employment; it is particularly difficult to project the increase in employment likely to arise as a result of the implementation of this Plan. It is tentatively estimated that wage employment in 1970 exceeds 30,000 and that by 1975 it will exceed 40,000. The achievement of this target, which represents a 33% increase during the Plan period, will depend on a substantial increase in private sector activity in response to the development of large scale mining. The latter is highly capital intensive; the two major mines – Orapa and Selebi-Pikwe – will give rise to a total projected direct employment for 1975 of only about 3,000, equivalent to one job for every R43,000 invested. It is estimated that the adult labour force increases by about 10,000 each year. This indicates that it will not be possible to absorb more than 20% of the increase in the adult labour force in wage employment. Many of the women will become housewives; the remainder must find their livelihoods in agriculture, or as migrant workers in South Africa.

Land Utilisation:

1.12 Botswana is divided into eight tribal territories (107,497 square miles), six freehold farming blocks (8,242 square miles) and State Lands (104,497 square miles) which are largely uninhabited sand veld but include the Central Kalahari Bushman Reserve.

1.13 The cultivated tribal lands usually start a few miles from the villages and in the case of larger villages may stretch in any direction up to thirty miles. These "lands" are normally concentrated in one or more places; but often in arid areas are widely scattered. Around and beyond the "lands" lie the cattle posts; these are either at boreholes or at wells dug in the sands of ephemeral rivers. Each cattle owning family maintains a cattle post which may be shared with other members of the extended family. Small cattle owners are encouraged to form syndicates to raise sufficient funds to pay for boreholes. Traditionally grazing areas are unfenced and may be used by any member of the tribe passing through the area.

1.14 It is estimated that there are 11 million acres of land suitable for cultivation in eastern Botswana; of these only one million acres are under cultivation or recent fallow; some 600,000 acres are considered to be potentially irrigable. Most of the remainder of the country offers good grazing. The national herd is estimated to number approximately 1.5 million head. The carrying capacity of the country is believed to be over 2½ million head provided sufficient watering points can be created.

Mineral Resources:

1.15 Since 1961 there has been a gradual decline in the value of mineral exports from Botswana. These depended largely on the small scale mining of chrysotile, asbestos and manganese-ore, but all mining activity ceased in 1965. A limited mineral export of asbestos fibre and of manganese from reserves of stockpiled ore, valued at R79,794 took place during 1966. During 1967, small scale manganese-ore mining was revised in south-eastern Botswana and production has been expanded since then. As a result of increasing mineral prospecting activity important mineral discoveries have been announced which will lead to the establishment of a mining economy in Botswana during the Plan period.

1.16 De Beers Prospecting Botswana (Pty) Limited, a subsidiary of De Beers Consolidated Mines Limited, has discovered a number of kimberlite pipes in the Letlhakane area, south of the Makgadikgadi and about 110 miles west of Francistown. One of the pipes has been proved to be very large; commercial exploitation of this will commence in mid-1971. Meanwhile active exploration is being continued. In the Selebi-Pikwe area some 70 miles south-east of Francistown, Bamangwato Concessions Limited, a subsidiary of Botswana RST Limited, have discovered payable deposits of copper and nickel; commercial exploitation may commence in the latter half of 1973. The total private and public investment to be made in developing these two mines will exceed R130 million.

1.17 Geological investigations have established the existence of a substantial coalfield adjacent to the railway line at Morupule, 6 miles west of

Shoshong: A typical traditional Botswana town.

Palapye, and at Mamabule some 80 miles south of Palapye. It is planned to establish a colliery on the Morupule coalfield with the object of supplying a power station designed to cater for the needs of mining developments at Selebi-Pikwe. The feasibility of large scale exploitation of the coal reserves will be undertaken during the Plan period.

1.18 Payable deposits of brine have been proved at Sua Pan, west of Francistown. From these, soda ash and salt could be extracted for export mainly to South Africa and Zambia. Active exploration is being undertaken for diamonds, copper, nickel and other metals both in the east and the west of Botswana. A full description of Botswana's mining potential is given in Chapter VII.

Domestic Incomes:

1.19 The systematic collection of economic statistics has only recently been started. A series of reliable national income accounts is therefore not available. Estimates have been made for the year 1967/68, but they may contain a significant margin of error. The results of this work are given, in Tables 1-2 and 1-3, since they provide a useful guide to the structure of the economy. The figures must be treated with caution.

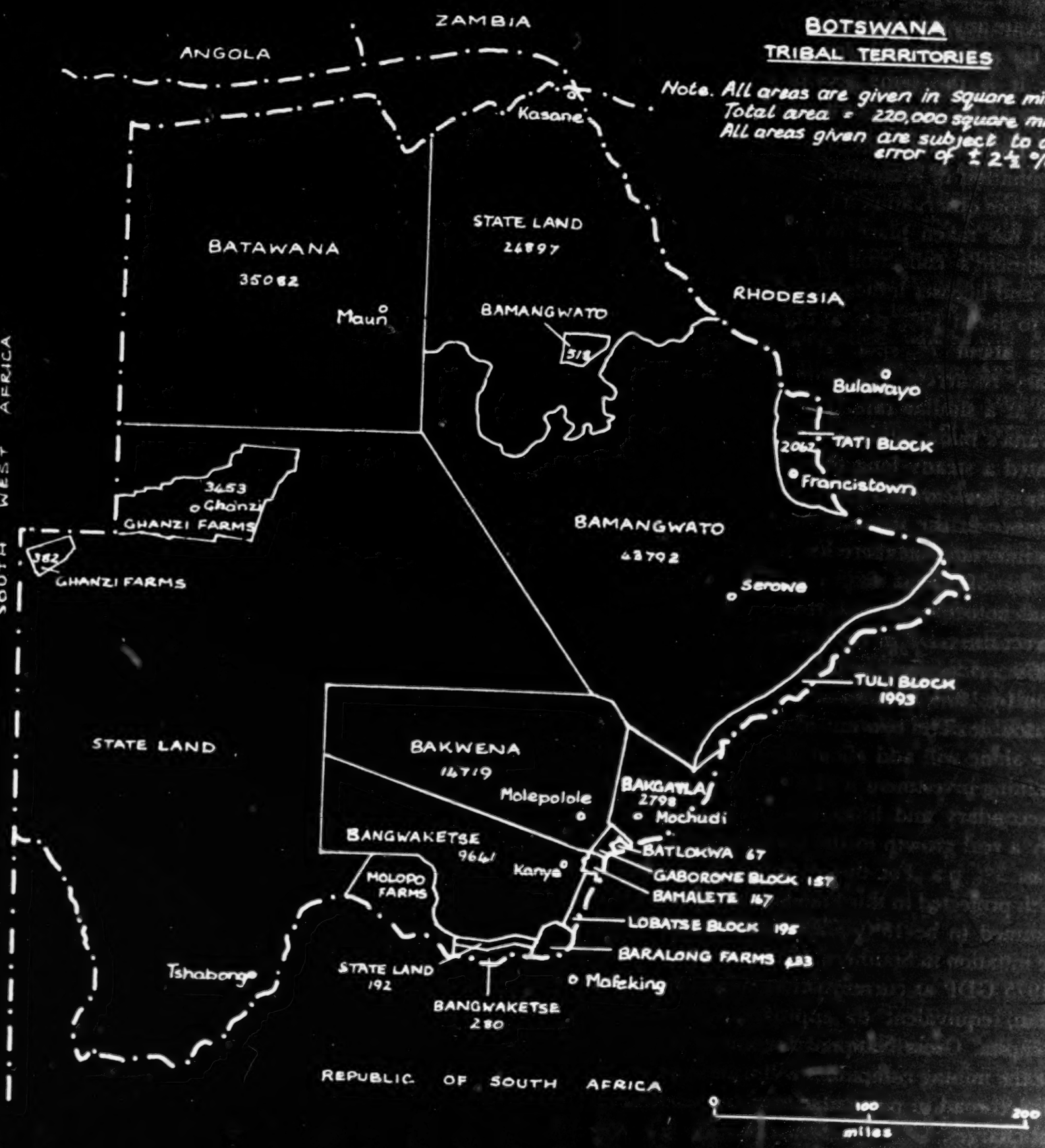
1.20 Figures relating to payments to and from abroad are not available, and, due to Botswana's membership of the rand currency area, cannot easily be obtained. The Gross Domestic Product (at market prices) for 1967/68 is estimated at R42 m. which gives a figure for GDP per capita of R67 p.a. Subsistence production contributes some 40% of the total which is comparatively low for a country as under-developed as Botswana. This is partly explained by low subsistence crop production due to adverse climatic conditions, and partly by the high degree of monetisation in the production of cattle.

1.21 In 1967/68 the agricultural sector contributed 43% of GDP. The output of this sector, however, varies greatly from year to year dependent on the quantity and pattern of rainfall. In 1965/66, for example, approximately one fifth of the population was receiving famine relief. The crops failed almost entirely and cash incomes, mainly from the sale of cattle and the remittances of migrant labour, were directed to the purchase of food supplies and away from less essential consumer goods. At the same time the drought caused a record offtake from the national herd and the highest ever number of labourers (32,319) offered themselves for work on the mines. Thus in years of drought personal expenditure is partially met by disaving (i.e. by reducing the size of herds) and in years of good rainfall saving takes place as the national herd is built up. Since serious droughts are a regular feature of life in Botswana, fluctuations in national income due to droughts are to be expected, which will obscure the underlying trend.

1.22 The domestic income figures reveal an evident disparity in incomes between the rural and the urban sectors. As already noted the main source of income in the traditional rural sector is from the production of crops and livestock. Other economic activities include hunting, the collection of wild fruits, roots and vegetables, forestry, fishing, handcrafts, hut building and brewing. The only available estimates of the contributions to rural incomes in terms of net value added arising from these various sources relate to the year 1st July 1967 to 30th June 1968 and are as follows:

	R
Crops	670,000
Cattle	6,350,000
Goats and Sheep	600,000
Poultry and Pigs	250,000
Milk	2,350,000
Kraal Manure	45,000
Hunting	2,000,000
Fishing	20,000
Forestry (foraging)	600,000
Handicrafts	500,000
Brewing	300,000
Construction	1,500,000
Imputed Rent	1,800,000
	R 16,985,000

1.23 This is equivalent to R35 per capita and since the average rural holding includes eight persons, the average rural household income was R280 in 1967/68. This should be compared to the average non-agricultural wage of R509. To place the figure for rural incomes in perspective, it is important to note that more than half this income was received in kind, and has been valued conservatively at local market prices. 1967/68 was a year of partial drought with widespread crop failure, necessitating a modest Government programme of drought relief in the form of food-for-work ("Ipelegeng"); the rains fell late and in most areas the grazing was good. No account is taken in the above figures for remittances from the modern or urban sector to the traditional rural sector; these might amount to R5 per capita per annum. Average incomes are only meaningful if we have some idea of the distribution of income among the population. In the rural areas in Botswana there is significant inequality of wealth which the Government will


BOTSWANA
TRIBAL TERRITORIES
Note. All areas are given in square miles
Total area = 220,000 square miles
All areas given are subject to an error of ± 2½ %.
ZAMBIA
ANGOLA
Kasane
BATAWANA
35082
Maun
STATE LAND
24897
BAMANGWATO
318
RHODESIA
Bulawayo
TATI BLOCK
2062
Francistown
3453
Ghanzi
GHANZI FARMS
382
GHANZI FARMS
BAMANGWATO
48792
Serowe
TULI BLOCK
1993
STATE LAND
BAKWENA
14719
Molepolole
BAKGATLA
2798
Mochudi
BATLOKWA 67
GABORONE BLOCK 187
BAMALETE 167
LOBATSE BLOCK 195
BARALONG FARMS 423
BANGWAKETSE
964
Kanye
MOLOPO FARMS
Tshabong
STATE LAND
192
BANGWAKETSE
280
Mafeking
REPUBLIC OF SOUTH AFRICA
SOUTH WEST AFRICA
0
100
200
miles

seek to reduce as development proceeds. Some 13% of the rural population (62,000) appear to depend entirely on remittances or the charity of others. Approximately a further 21% (100,000) are members of agricultural holdings possessing no cattle whatsoever, and partly as a result 90% of these failed to cultivate any land in 1967/68. On the other hand, 4% of the agricultural holders own some 30% of all cattle; it is the same group who cultivate the majority of the large lands areas.

1.24 Existing statistics do not permit any precise determination of economic growth rates in recent years. From observation it is evident that significant growth has taken place over the past five years; Government's collection of revenue from taxes, duties and licenses indicates a rising upward trend equal to about 10% p.a. at current prices, equivalent to about 7% p.a. at constant prices, and ordinary recurrent Government expenditure has grown at a similar rate. The underlying trend in Botswana's main industry – cattle ranching – has indicated a steady long term improvement in the quality of beef carcases and in the percentage offtake and hence in the value of output. Tentative estimates indicate that there has been a growth in the economy of about 8% p.a. at current prices, equivalent to 5% p.a. real growth. If this assumption is correct the GDP in 1969/70 is about R50 million at 1970 prices and is projected to exceed R90 million by 1974/75 (also at 1970 prices), and may even double. The two mines at Orapa and Selebi-Pikwe alone will add about R30 million to GDP.; the mining investment is likely to generate substantial secondary and linkage activity which would justify a real growth in the underlying economy of at least 5% p.a. For these reasons the overall real growth projected in this Plan for the period 1970/75 is assumed to be 15% p.a. Assuming that overall price inflation in Southern Africa is held to 3% p.a. By 1975 GDP at current prices might reach R110 million, equivalent to approximated R150 p.a. per capita. Gross National Income will be lower, since the mining companies will transfer substantial profits abroad in particular to meet capital repayment charges.

Trade:

1.25 Botswana is joined to Lesotho, South Africa and Swaziland in a Customs Union Agreement which was substantially revised in 1969. As a result of the existence of the Customs Union goods move freely between the two countries but until recently no precise records of the movements of goods has been kept. Botswana also has a customs agreement with Southern Rhodesia which permits the free movement between the two countries of a wide range of goods. Existing import statistics are based on questionaires to importers and tend to underestimate the total. The figures which have been collected do not indicate the origin of the goods. A high proportion of the goods are of South African manufacture which are able to compete effectively with overseas manufacturers in the protected Southern African market. Botswana's trade figures for 1968 are given in Tables 1 – 5 and 1 – 6; it will be noted however, that the figures for exports are incomplete.

1.26 In recent years successive droughts have necessitated large imports of basic foodstuffs such as maize. In years of good rainfall Botswana becomes a net exporter of sorghum, no less than 17,600 tons having been exported in 1961. At present Botswana's exports are heavily dependent on the livestock industry which contributed over three quarters of their total value in 1968. By 1975 it is estimated exports of minerals will exceed R50 million enabling Botswana to achieve a substantial surplus on visible trade. The export figures given in Table 1 – 6 are obtained mainly from administrative sources and it is known that there are a number of omissions; the total figure is likely to be of the order of R10 million in 1968.

1.27 Under the 1969 Customs Union Agreement customs, excise and sales duties are paid into a common pool managed by South Africa. Botswana receives revenue payments in respect of its share of the duties collected directly proportional to the level of imports and the production of dutiable goods according to a formula. At present the revenue payment is equivalent to slightly less than 20% of the total value of all Botswana's imports (c.i.f. Botswana's border), regardless of source and regardless the category of importer. The Agreement also provides for infant industry protection for new enterprises in Botswana by the levying of "additional duties" on all imports of a specified good from whatever source for a limited period.

1.28 The fixing of the tariff of duties remains the perogative of South Africa, but the new Agreement makes detailed consultation in a variety of circumstances obligatory. To facilitate consultation, a Southern African Customs Union Commission has been established, consisting of representatives of the four member countries, which will meet annually to review the operation of the Agreement. Any Botswana industry capable of supplying a substantial proportion of the total Southern African market may apply for protection in the whole Customs Union Area on the basis of the same norms as apply to an industry in South Africa. In the marketing of agricultural commodities Botswana has a right to participate on an equitable basis in marketing schemes operating in South Africa.

Monetary and Financial Arrangements:

1.29 Botswana participates in a joint monetary system with South Africa, the Rand being legal tender in the country. This arrangement eliminates any international payments disequilibria in the conventional sense, and assures the country of a stable and internationally recognised currency. However it has the disadvantage of making Botswana subject to monetary and credit policies over which it has little control. This difficulty has been circumvented to a limited extent by establishing a Botswana National Development Bank capable of supplementing the credit facilities provided by the two commercial banks operating within the country.

1.30 The National Development Bank was established in 1965 for the purpose of promoting the economic development of the country with priority being given to agricultural credit for farmers, co-operative credit and loans for local business ventures. Its impact has been limited so far due to a shortage of capital and of viable projects.

1.31 So far there are few channels for the investment of local savings in Botswana. The Post Office runs a successful savings scheme and part of the funds raised in this way are invested in the National Development Bank. A number of Thrift and Loan Societies have been started under the aegies of the Department of Co-operative Development.

1.32 The Government has recently raised R3 million through two issues of Government Bonds. R1 m was raised in the form of 5½% (tax free) Registered Bonds (1975), and R2 m in the form of 7½% (tax free) Registered Bonds 1988 to 1997; the South African Government has agreed that these bonds may be regarded as "approved" or "proscribed" stock in terms of the legislation governing South African financial institutions. It is intended that similar amounts should be raised annually during the Plan period.

1.33 Standard Bank and Barclays Bank D.C.O. operate in Botswana maintaining eight branches and twenty-six weekly agencies. Their credit policy is subject to overall control by the South African Reserve Bank. At present there is no proper banking legislation controlling the operation of the banks; it is Government intention to introduce as soon as possible standard legislation which will provide depositors with adequate protection and provide the necessary framework for private commercial banks to operate within the context of Government's overall economic policies.

1.34 Tables 1-7 gives the figures for deposits and liabilities over recent years. It can be seen that advances as a proportion of deposits fell steadily from 1965 to 1970, but efforts are now being made to reverse this trend. It is to be expected that the advances to deposit ratio will increase rapidly during 1970/75 and that the availability credit will become very scarce towards the end of the Plan period unless the banks transfer funds to Botswana from abroad.

Table 1-2 Gross Domestic Product and Expenditure (R'000)

Compensation of employees	13,148	Government final consumption expenditure	11,631
Operating surplus	23,815	Private final consumption expenditure	41,688
Consumption of fixed capital	2,711	Increase in stocks	– 1,527
Indirect Taxes	2,577	Gross fixed capital formation	9,862
Less subsidies	– 42	Exports of goods and services	8,355
		Less imports of goods and services	– 27,800
Gross Domestic Product (market prices)	42,209	Expenditure on G.D.P.	42,209

Source: Central Statistics Office.

Table 1-3 Industrial Origin of Gross Domestic Product at Factor Cost (R'000)

	Compensation of Employees	Consumption of fixed capital	Operating Surplus	G.D.P. at Factor Cost
Agriculture, hunting, forestry and fishing	551	258	17,522	18,329
Mining and quarrying	589	101	- 1,772	- 1,082
Manufacturing	693	248	2,628	3,569
Electricity, gas and water	111	17	178	306
Construction	1,110	71	859	2,040
Retail and wholesale trade, hotels and restaurants	1,050	152	1,262	2,464
Transport, storage and communications	1,186	630	586	2,402
Financing, insurance, real estate and business services	381	23	189	593
Community, social and personal services	925	28	28	970
Government services	6,552	1,185	–	7,737
Ownership of dwellings	–	–	2,335	2,335
	13,148	2,711	23,815	39,674

Source: Central Statistics Office.

Table 1-4 Industrial Origin of Gross Capital Formation (R'000)

	Gross fixed Capital formation	Increase in stocks	Gross capital formation
Agriculture, forestry, hunting and fishing	575	–	575
Mining and quarrying	461	90	551
Manufacturing	632	- 2,165	- 1,533
Electricity, gas and water	1	–	1
Construction	53	55	108
Retail and wholesale trade, hotels and restaurants	660	388	1,048
Transport, storage and communications	1,380	105	1,485
Financing, insurance, real estate and business services	126	–	126
Community, social and personal services	7	–	7
Government services	4,467	–	4,467
Ownership of dwellings	1,500	–	1,500
TOTAL	9,862	- 1,527	8,335

Source: Central Statistics Office.

Table 1-5 Estimated Value (in Rand) of Imports into Botswana: 1967 and 1968
By S.I.T.C. Section

Section	1967	1968
Food and Live Animals	5,549,357	5,800,256
Beverages & Tobacco	1,615,034	1,700,794
Crude Materials, Inedible, Except Fuels	–	349,032
Mineral Fuels, Lubrications & Related Materials	2,438,495	2,450,438
Animal & Vegetable Oils and Fats	–	12,804
Chemicals	812,001	793,590
Manufactured Goods Classified Chiefly by Material	3,808,459	4,817,422
Machinery & Transport Equipment	4,641,678	4,024,796
Miscellaneous Manufactured Articles	2,300,429	2,375,304
Commodities & Transactions Not Classified according to Kind	1,204,528	906,316
TOTAL	22,369,981	23,230,752

Source: Trade Returns.

Table 1–6 Exports by Commodities: 1968

Commodity	Unit of Quantity	Quantity	Value (R)
1. Cattle (Live)	Head	373	18,740
2. Cattle (Carcasses)	No.	64,561½	5,832,003
3. Sheep & Goats (Live & Carcasses)	–	–	218,998
4. Hides & Skins (Cattle, Goats and Sheep)	No.	106,186	525,613
5. Skins, Mats & Karosses (Wild animals)	–	–	103,558
6. Canned Meat	Lbs.	–	–
7. Meat Extract	Lbs.	–	–
8. Offals and tallow	Lbs.	2,754,620	170,313
9. Bonemeal	Lbs.	1,575,428	43,462
10. Carcassmeal	Lbs.	3,159,947	107,658
11. Abattoir by products (other)	–	–	45,271
12. Butterfat	Lbs.	240,165	89,085
13. Other animal products	–	–	58,907
14. Beans and cowpeas	(200 lb Bag)	13,267½	79,605
15. Sorghum	,,	298	1,192
16. Manganese Ore	Short Tons	11,021	215,262
17. Talc	,,	137	1,451
TOTAL			7,491,118

Source: (1) Livestock Products – Veterinary Department
(2) Agricultural Products – Department of Agriculture
(3) Mineral Products – Geological Department.
Caution: This Table is incomplete.

Table 1–7 Bank Advances and Deposits

	Deposits (R'000)	Advances (R'000)	%
March 1965	5,581	5,132	92.0
March 1966	8,166	6,488	79.5
March 1967	9,640	5,454	56.6
March 1968	12,591	7,048	56.0
March 1969	13,038	6,598	50.6
March 1970	20,136	10,137	50.3

Chapter II – Strategy for Development

The Need to Plan:

2.1 The Government wishes to stress its belief in the necessity of planning the social and economic development of the nation. Available resources are limited and the problems so great that only by careful planning can these resources be put to their most effective use. A rationally planned and guided economy is the objective of Government policy. However, a balance must be struck where private initiative has ample scope within the general confines laid down by Government. It is Government's duty to set forth clearly its objectives and priorities, to frame its policies accordingly, and to assist the private sector in every way consistent with the attainment of these goals.

2.2 Any national plan, if it is to secure the support of the people, and the sympathy and assistance of other nations, should state clearly the priorities which will guide both the recurrent and capital expenditure of the Government. These rational objectives and priorities are set forth below and are the result of the most careful consideration.

2.3 The present document is designed to provide a detailed plan for the economic and social development of Botswana during the next three years, expenditure projections for the next five years and to give longer term guidelines for future development where feasible and appropriate. This Plan will be revised and brought up to date in early 1973, when a new 1973/78 National Development Plan will be published. This Plan has a second basic objective – to describe briefly in Part II the development projects which, it is hoped, will be financed by nations more developed than Botswana.

Planning Machinery:

2.4 The responsibility for the preparation of national plans rests with the Ministry of Finance and Development Planning, which is headed by the Vice-President. This Ministry is also responsible for general oversight of the implementation of agreed plans; this task is facilitated by the Ministry's control of expenditure through the annual Development Budget and the ordinary Recurrent Budget. The Ministry has a Division of Financial Affairs primarily concerned with financial administration and a Division of Economic Affairs responsible for planning and for providing economic advice generally to government departments. The Ministry of Finance and Development Planning is responsible for the negotiation of external aid, and for the Botswana Development Corporation and the National Development Bank. The Central Statistics Office is located within the Ministry. In addition the Ministry is the co-ordinating authority for the two major inter-departmental development projects, the Shashe Complex and the Surveys and Training for the Development of Water Resources and Agricultural Production.

2.5 To assist in planning the use of natural resources, a Natural Resources Co-ordinating Committee has been established under the Chairmanship of the Vice-President. On it are the Permanent Secretaries of all the executive Ministries concerned with the use of natural resources. To assist and advise the Co-ordinating Committee, a Natural Resources Working Committee has also been formed on which sit all the key senior technical officers concerned with natural resources. It is the responsibility of these committees to advise on projects and measures designed to achieve optimum use of all natural resources in an integrated and co-ordinated manner, giving due weight to the need for conservation.

2.6 Consultation with the private sector on economic matters is to be maintained through meetings of the National Economic Advisory Council, the structure, composition and procedures of which will be reviewed. In addition there are several specialised bodies through which Government is able to draw on the knowledge and experience of the private sector, the most important being the Livestock Industry Advisory Committee, the Education Advisory Committee, the National Technical Training Advisory Committee and the Medical Advisory Board. To ensure orderly physical development, there is a Town and Country Planning Board.

General Economic and Social Objectives:

2.7 In the absence of accurate national income statistics, it is not very meaningful to talk of raising per capita income by a precise percentage figure. It was explained, however, in Chapter I, that a growth rate of about 15% p.a. over the next five years seemed a justifiable expectation and this is the figure that has been assumed in this Plan. If mining development occurs to a greater extent than the present cautious estimates envisaged, the rate of growth may easily reach 20% per annum. If this happens, the projections contained in this Plan, for example, for trained manpower, will require upward revision.

2.8 Botswana is a country with very low per capita income but it possesses sufficient natural resources to permit, with outside assistance, rapid development. As yet, the resources available are largely unexploited. Wide areas of grazing have yet to be opened up. The crop and animal husbandry techniques practised by the majority remain rudimentary. Serious mineral exploration only began in 1957; recently substantial discoveries have been made, indicating that there are mineral deposits of great economic importance waiting to be

exploited. Although most parts of the country are arid, millions of gallons of water flow out of the country each year and the vast water resources of the Okavango remain virtually unused. To date, little industrial development has occurred, but if adequate supplies of water and power can be made available near the line of rail, there is little reason why Botswana manufacturers should not compete in the rich southern and central African markets, to which they have uniquely privileged access.

2.9 Botswana is an enormous country, sparsely inhabited. For the purpose of good government and security, it is necessary to maintain an administrative super-structure costing, in per capita terms, more than in most other countries. There is an extensive network of roads to be maintained linking the capital to the remotest villages. The cost per head of water supplies and other basic services are high compared to more favoured countries. In addition, the quality of these essential services is inevitably lower than in more densely populated territories.

2.10 Fundamental to the plans and policies of the Government is a determination to make the country a financially viable entity in the shortest possible time. No politically independent nation can or should expect to survive indefinitely on grants to meet the ordinary recurrent expenditure of Government. Development of the resources outlined above, in the ways explained in detail in the chapters which follow, should enable Botswana to free itself entirely of grants-in-aid within the next three years and permit, at the same time, standards of living to be progressively improved. But these two objectives can only be fully achieved if a flow of capital assistance is received from external sources in the amounts projected in this Plan.

2.11 The revenue raised internally at present by Government only covers two-thirds of the cost of existing services. There are therefore very few local funds to be spent on development, even though it is intended that all inessential public expenditure will be vigorously restrained and all waste avoided. There is scope for mobilising local savings for investment locally, and proposals in this regard are set out in Chapter XII.

2.12 Development which can take place with little outside aid is that based on self-help – the construction of rural roads, small dams and buildings using local materials – and these activities are already and will continue to be encouraged energetically by the Government, in ways described in Chapter IX.

2.13 A more equitable distribution of income among the people is a long range objective of Government policy. The immediate goal is to increase the number of job opportunities within the country and to encourage private initiative wherever it is evinced. Although it is possible at present for Batswana to find employment on the South African mines, this situation is unlikely to continue indefinitely. The Government has, however, no intention of interfering with this flow of labour to the Witwatersrand; on the contrary it recognises that the mines offer vitally needed employment to men who would otherwise be without work.

2.14 In health and social services, it has not been possible to assign the priority truly wished. Government is aware of the widespread desire for better medical services, but the stringent financial situation necessitates reliance on foreign project aid for any improvements in this field.

Employment, Wages and Rural Development

2.15 In Chapter I it was explained that during the Plan period the net annual increase in the adult labour force was about 10,000 whilst the average annual net increase in wage employment was not likely to greatly exceed 2,000. Although a large number of the women, who compose roughly half the increase, will assume the natural role of homemaker, the figures make clear that even with the exceptionally high rate of economic growth envisaged, the major proportion of new entrants to the labour force will not find salaried jobs. Three out of every five primary school leavers will have to be absorbed into the rural sector.

2.16 If one considers only the male labour force between the ages of 15 and 65, Table 2–1 illustrates the position in 1968.

Table 2–1 Distribution of Male Labour Force: 1968

Potential Labour Force	160,000
Wage earners in Botswana	24,457
Workers in South Africa	42,000
Domestic Servants	1,500
Total number of employees	67,957
Self-employed in the modern sector	1,250
Total gainfully employed	69,207
The remaining balance	91,793

2.17 Of the 90,000 in the rural sector approximately one-third are required to manage the national herd. Although arable farming is widespread, at present it occupies only a relatively small number of the male population for part of the year. It is evident that there is considerable under-employment of the rural male labour force.

2.18 The 1967/68 Agricultural Survey estimated that out of the total population of 600,000, some 420,000, or 70%, were in the traditional rural sector attached to 53,400 agricultural holdings. A significant percentage of the population has apparently no visible direct means of support. The number

in salaried employment outside the traditional rural sector was estimated to be 28,148 in 1967; this excludes self-employed persons in the modern sector who totalled about 1,250. If we assume that each employed or self-employed person supported three others – that is 118,000 or one-fifth of the population – then there remain some 62,000 (or one-tenth) whose source of livelihood is not identified. A proportion of these people are destitutes, whilst the remainder will be supported by the remittances of migrant labourers working in South Africa or by workers in the urban sector.

2.19 The recent discovery of important mineral deposits has created opportunities for the diversification of the economy. It is a matter of concern, however, that the establishment of a mining industry could give rise to a new group of unskilled employees in the modern sector of the economy with a standard of living substantially above that of the rural sector where the vast majority of the population must continue to seek their livelihoods. If Botswana is to avoid the social unrest caused by gross inequalities of wealth between the rural and the urban sectors experienced in other African countries, wages levels on the mines and in Government (the other major employer) must be restrained, and the surplus resources thus liberated used to promote rural development.

2.20 The average per capita rural income is about R35 p.a. The modal rural income is well below this, due to the concentration of cattle wealth in few hands. The wages paid to unskilled labour in the modern sector varies between R6 per month and R20 per month, whilst those in the rural areas tend to vary around R5 per month. It is Government's objective that the existing gap between rural and urban incomes should not widen.

2.21 Botswana has no comprehensive minimum wages legislation. Wage levels generally are greatly influenced by those pertaining in neighbouring countries and, except in the case of more senior employees, are generally lower. It is Government policy that no employee, either in the urban sector or the rural sector, should be required to work for less than a minimum living wage which enables him to clothe, feed and house himself and his immediate family sufficiently to maintain good health. In this respect the minimum wages paid by Government in different areas for different work are intended as a guide to private sector.

2.22 Since Botswana forms part of a common customs and currency area, the Government, in formulating a wages policy, is not constrained by monetary problems. It is, however, concerned that labour productivity in relation to wages should compare favourably with that in the remainder of Southern and Central Africa, so that investment is attracted to Botswana and employment thereby expanded. The Government is also concerned that the level of income in the rural sector should not lag too far behind that of persons employed in unskilled occupations in the urban sector. This objective will be achieved by a major drive to raise agricultural productivity through extension services and to ensure that an optimum return is received by farmers for their labour through co-operatives and other measures to improve marketing.

2.23 During this Plan period Government intends to devote considerable resources to the task of rural development. With wage restraint in the modern sector, investment and hence employment opportunities will be maximised; at the same time Government's tax revenues will also be maximised and the surpluses thus generated can be channelled into rural development and the improvement of rural services (see in particular Chapters III, IV, IX and XI).

2.24 At the more senior levels, the heavy dependence on expatriates has given rise to inflated salaries. The long term objective is to reduce the inequitable salary differentials which exist between the subordinate staff and the managerial and professional levels. In most cases this will be accomplished by freezing (if not reducing) the salaries paid to senior staff and progressively raising the salaries of junior employees as and when increments are justified by overall increases in productivity.

Population Growth and Family Welfare:

2.25 The analysis of the labour force and the projected expansion in wage employment given above indicates clearly that, even on the most optimistic assumptions concerning long term economic growth, the percentage of the labour force in wage employment will continue to fall unless the rate of growth of population is curbed significantly. At Botswana's stage of development economic growth is in no way assisted by the rising population. Living standards are reduced in direct proportion to the growth in population. For every one percent per annum increase in population, the rise in per capita incomes is lowered by one per cent. Although Botswana's is a large country in terms of area, it is not markedly under-populated in terms of resource endowment.

2.26 The present population of 648,000 is growing at present at an estimated 3% p.a., thereby lowering the increase in income per capita by 3%. Unless widespread efforts are made to improve

POPULATION DENSITY
population per square mile
20
10
5
4
3
2
1
0
ANGOLA
ZAMBIA
RHODESIA
Livingstone
Kasane
Maun
Ghanzi
SOUTH WEST AFRICA
Francistown
Tonota
Bobonong
Serowe
Palapye
Shashong
Mahalapye
Molepolole
Mochudi
Thamaga
Moshupa
Kanye
Mochudi
Mokwena
Gaborone
Ramotswa
Lobatse
Tsabong
Mafeking
REPUBLIC OF SOUTH AFRICA
40,000
20,000
10,000
5,000
500
0
100
200
miles

knowledge of family planning at the same time as medical services are improved, the rate of population growth is likely to rise above 3% p.a. to become one of the highest rates in the world. Before the introduction of modern medical practices a high birth rate was essential to counteract heavy infant mortality and prevent a population decline. The consequences of reduced mortality, combined with a continuing high birth rate, will cause a population explosion which could easily undermine the standard of living of the nation. It is better to have fewer children who may be well fed, well clothed, and properly housed and educated, rather than many children who cannot be adequately cared for, and who will suffer as a result. A strong nation is one where the individual citizen is healthy and educated. Botswana cannot build a strong nation if the developmental effort is continously undermined by the sheer weight of numbers for whom basic services must be provided.

2.27 Table 2–2 sets out alternative population projections based on varying assumptions concerning the long term growth rate. It is evident that if the expansion of population could be reduced over the next thirty years to a figure of ½% p.a., the income per head would be about 50% higher than would be the case if present trends continue. The target set in this plan is a population growth rate not exceeding an average of 2½% p.a. for the decade 1970/80. This target is to be achieved firstly by establishing a network of maternal and child welfare clinics at which family planning advice will be available, and, secondly, by creating throughout the country a better understanding of the issues involved. The task ahead is to educate a whole nation. It is to be expected that the ground work undertaken in this decade will only begin to produce significant results in the decades which follow.

Table 2:2 Alternative Population Projections

	1970	1980	1990	2000
Assumption A	648,000	871,000	1,171,000	1,574,000
Assumption B	648,000	829,000	1,011,000	1,173,000
Assumption C	648,000	829,000	963,000	1,012,000

Note:

Assumption A : growth 1970/2000 is 3% p.a.
Assumption B : growth 1970/80 is 2½% p.a.
1980/90 is 2% p.a.
1990/2000 is 1½% p.a.
Assumption C : growth 1970/80 is 2½% p.a.
1980/90 is 1½% p.a.
1990/2000 is ½% p.a.

Manpower:

2.28 If it proves feasible to restrain population growth, it should be possible to achieve a systematic improvement in the overall standard of education, which is a fundamental prerequisite to attaining higher per capita productivity and hence income. Government's long term objective is to achieve complete manpower self-sufficiency by the 1990s and self-sufficiency in all but the highly specialised occupations during the 1980s. The planned expansion of secondary and higher education described in Chapter IX is designed to achieve these targets.

2.29 An immediate concern is to improve technical and vocational training so that Botswana may quickly become self-sufficient at the artisan level. The Division of Vocational Training in the Ministry of Education will be responsible for the preparation of detailed vocational training plans over the next years. Meanwhile every effort will be made to expand training in every field. In particular, in the civil service training will be accelerated and increased emphasis will be given to staff development.

Conservation of Natural Resources:

2.30 The Government is keenly aware that in promoting development, the country's natural resources must be exploited but not destroyed. The nation has a right to bring available resources into production, but in so doing the present generation must leave behind to future generations a country at least as well endowed as it inherited. With due care and skill the country's resources may be harnessed and improved.

2.31 In developing mines the country can liberate wealth which may be channelled into infrasturcture development and the conservation of the land. In this latter respect, Botswana is currently faced with a critical situation which calls for a major reorientation of traditional attitudes. In many parts of the country over-stocking and poor veld management is leading to the wholesale destruction of grazing areas. Botswana has some of the finest ranching land in the world; wide areas are rapidly being turned into scrub desert which may never recover. The situation calls for urgent and radical action.

2.32 Some relief might be achieved by moving large herds for resettlement in vacant areas in the west. However, the Kalahari offers a very delicate habitat which could only be beneficially occupied under the strictest control. Furthermore the pressure on grazing areas in the east could only be eased in this way, if stock numbers among the remaining cattle owners were brought under strict control. The Batswana traditionally have adopted communal attitudes towards the land. It is the communities, the villages and wards, which must now

organise themselves with Government assistance to protect and conserve the veld.

2.33 Government has in recent years enacted legislation designed to protect the country's natural resources. These statutes cover forestry, wildlife, water and minerals. The new Tribal Land Act provides machinery, through the Tribal Land Boards, to implement measures for land conservation. As explained in Chapter IV, the Government proposes as soon as possible, to introduce an Agricultural Act which will enable control to be exercised over stocking rates and ploughing. It is clearly recognised that if these measures are to be successful, and not create unrest, the full co-operation and understanding of the individual farmers must be obtained. The Tribal Land Boards will be fully briefed on conservation problems and be provided as far as possible with detailed technical advice. Efforts will be made to establish local conservation committees.

2.34 The conservation of Botswana's wildlife and water resources is also of great importance. Unlimited hunting cannot be permitted if the game populations are to be maintained at an adequate level. Game provides a vital contribution to the diet of some of the poorest inhabitants, but as the human population grows so does the need to control hunting in order to maintain a sound ecological balance. The Okavango Delta area is a particularly sensitive ecological environment; in this knowledge Government is conducting detailed studies on the hydrology and ecology of the area and it is hoped that these will enable controlled exploitation of the vast land and water resources available in this region to be commenced towards the end of the Plan period.

Water and Land Use Planning:

2.35 To ensure optimum use of natural resources, the Government proposes to undertake during the Plan period the systematic preparation of land use plans. The first step will be the compilation of land use capability maps by the newly created Division of Land Utilisation in the Ministry of Agriculture. The Division will draw on the technical expertise in the Departments of Water Affairs, Wildlife and National Parks and Geological Survey and Mines. Land use planning will be co-ordinated by the Natural Resources Technical and Co-ordinating Committees at the national level and by the proposed District Development Committees at the local level.

2.36 The severe droughts of the last ten years provided a brutal demonstration of the country's vulnerability resulting from its scanty and poorly controlled water resources, and showed clearly the vital necessity for the careful conservation and rational exploitation of the resources that do exist. The development of water supplies in such circumstances is much more costly than in countries better endowed with sources of supply, and this factor in turn makes all other kinds of economic development more difficult and costly. Nevertheless, without adequate supplies of water development is impossible, and the provision of water supplies must take high priority in the development programme. A prerequisite of the exploitation of water resources is the collection and study of hydrological information. To this end, the Government has embarked on a comprehensive project which will establish a basic hydrological network and carry out a hydrological survey of the Limpopo Basin, and assist in setting up a hydrological service.

2.37 Dry-land arable farming in most parts of Botswana is a hazardous, marginal activity. Even the best farmers can obtain only subsistence crops in years of drought. Only by expanding the acres under irrigation will it be possible to assure the country of its food supplies under all conditions. Irrigation farming offers the best way of increasing the production of cash crops, thereby reducing the economy's dependence on the livestock industry. Provision is therefore made in this plan for pilot irrigation schemes where experimental work can be carried out to determine optimum methods of irrigation cultivation under Botswana conditions. With this data and the results of the hydrological survey the way will have been cleared for the exploitation of the enormous irrigable potential of the Okavango Delta area.

2.38 Increased output of the livestock industry the country's major productive sector depends greatly on opening up new grazing areas through the establishment of water supplies, and backing this with a concentrated input of extension services and the development of the educational system. In the first instance this means continuing the exploration of underground water supplies undertaken by the Geological Survey Department and providing loan capital, through the National Development Bank, for repayment boreholes. In addition, the construction of haffirs and small earth dams within a specific catchment area, in accordance with detailed land use plans, would enable both cattle and people to be spread more evenly over the land, and thus permit integrated farming.

2.39 The improvement of domestic water supplies in the rural areas is handicapped by the high cost of dams and boreholes and the apparent reluctance of individuals to accept that good water supplies must be paid for. Provision, however, is made for the

construction of dams in key places where the shortages are particularly acute (see Chapter III). Meanwhile, wherever possible the Government will press for water supplies to be placed on an economic basis and subsidies will be progressively eliminated.

2.40 Although it is highly desirable to seek ways of reducing the economy's dependence on the agricultural sector, it will nevertheless be necessary to look to this sector, and in particular to livestock, in the immediate future for the main increases in the family incomes. The standard of living in the rural areas can be enormously improved through the introduction of better arable farming and animal husbandry techniques. To this end a large allocation of funds will be made on projects aimed at the improvement in the quality of livestock and increasing crop production. Research to back the extension service will be intensified. The detailed proposals are set out in Chapter IV.

Private Enterprise:

2.41 Implicit in the plans and policies of the Botswana Government is a belief in the capacity of this country to effectively absorb capital investment funds. The building of Gaborone from nothing more than a minor village to a well-equipped capital, of which every citizen may be justly proud, in the space of three years is an illustration of what can be done. Because of the shortage of local funds, the Government looks not only to other Governments but also to private investors for the finance required to develop the country.

2.42 The expansion of the industrial base – presently very small – is a prime objective of Government policy. Botswana has duty-free access to surrounding countries, an advantage to be fully exploited if industrial development is to occur. To promote private investment the Government has established a Botswana Development Corporation (B.D.C.). The B.D.C. is willing to enter into joint partnerships with private investors, or to assist them with credit and in various other ways, as explained in Chapter VI.

2.43 Private enterprise will only be interested in investing in Botswana if they are assured of a stable and friendly environment; if there is a profit to be made; and if they are allowed to export their profits, should they so wish. These conditions the Government accepts. To make this quite clear and to create added incentives, the Government offers special fiscal reliefs for new investors and is prepared to examine sympathetically any specific proposals which investors may choose to make. The Government's policy will be, in the case of every proposal, to examine the balance of advantages to Botswana; the costs and benefits will be studied, and decisions made on that basis.

Land Tenure:

2.44 The present system of land tenure was described in Chapter I. The need for reform is recognised and a detailed study of the possible changes which might be introduced is being made. In the townships and large villages it is essential to grant a form of title which offers complete security and enables land to be regarded as a fully negotiable asset. In most cases this means the introduction of freehold, or land grants equivalent to freehold.

2.45 In tribal areas, the establishment of Tribal Land Boards opens the way to establishing a more secure form of tenure which should encourage investment. Progress in this field cannot be precipitate. Further reforms will be introduced as and when appropriate. Care will be taken at all times to secure not only the rights of the individual but also of the community.

2.46 On state agricultural land, the rights of long established tribal groups must be assured. The remainder where appropriate will be opened up to modern agriculture through the establishment of large farms. Since it is anticipated that in the long run progressive Batswana farmers will be settled on these farms, it is not intended to sell state agricultural land outright to foreigners. The Government is, however, willing to consider offering long-term leases in selected areas to a limited extent to non-citizens who possess adequate financial resources to develop well managed, modern farms. At the same time, settlement schemes will be started, through which it will be possible for Batswana to acquire properly developed modern ranches.

2.47 Mention must also be made here to the area of land formerly known as the Tati Concession. This concession was granted under special legislation in 1911 and residual rights are held by Tati Company Limited. The Company failed over the years to develop the concession adequately, but instead devoted its energies to collecting rents from squatters and to land speculation. Government has recently acquired substantial areas from the company. The necessary land capability studies are now in hand and development of the Tati area will be undertaken in the Plan period in a planned and orderly manner.

Mining:

2.48 The very rapid development of the economy projected in this Plan is almost entirely dependent on the successful creation of a mining sector. The potential has been identified; it remains now for the private companies in close co-operation with Government to undertake a massive programme of capital works over the next four years, as described in Chapter VII.

2.49 To complete the projected mining investments will call for a considerable effort from Government. The necessary resources in terms of both skilled manpower and finance will be made available, even where these must be imported. Government is, however, conscious of the need to continue to promote development in other sectors which must not be neglected due to too great pre-occupation with mining.

Communications:

2.50 The great distance between population centres and the difficulties of access have greatly retarded the development of Botswana's natural resources. Improvements in the standard of the road network must be related, however, to the traffic density. It is true that by upgrading key roads, development will be encouraged, but it would be economically unsound to over-invest in road development to the detriment of other sectors. The Government believes in the balanced development of the physical infrastructure and the allocation of finance for road improvement must be determined by strictly realistic projections of vehicle movements. The proposals for road improvements, contained in this Plan are described in Chapter VIII.

2.51 Good air services and telecommunications provide an essential concomitant to the road network. The Government believes that, in particular, a good telephone system yields dividends in terms of assisting overall development easily justifying its cost. This Plan therefore envisages a substantial expenditure on telecommunications, all of which is considered loanworthy. With regard to air transport, systematic improvement of existing airfields is planned to enable better services to be scheduled with increased safety. Given the long distances between settlements, good air communications will become increasingly important.

External Economic Relations:

2.52 The nature of Botswana's existing economic relations, its geographical position, as well as the size of the country, calls for a policy of maintaining friendly relations with as many countries of the world as are well disposed towards Botswana. Botswana, as a non-aligned country, is concerned to diversify its external economic relations, and in particular to improve its economic links with Zambia and other African states to the North. But Botswana recognises that it is an integral part of the Southern African Region. Thus Botswana participates in the Southern African Customs Union, the rand currency area and co-operates in other technical regional arrangements, for example, for disease and pest control. Botswana relies on the Southern African transport system for both imports and exports. Botswana welcomes private investment from any source, including South Africa, which seeks to work in the interests of the people of Botswana and in conformity with our development objectives.

2.53 It has been explained in Chapter I that Botswana is linked to the Republic of South Africa by a Customs Union and a joint monetary system. The present monetary arrangements have both advantages and disadvantages for the economic welfare of Botswana. Botswana is relieved of the cost and the problems of administering its own monetary system. The rand is internationally recognised as a sound and stable currency. Foreign investors are attracted by a currency with which they are familiar. In this respect free convertibility between Botswana and South Africa is an advantage.

2.54 Although Rand currency is legal tender in Botswana, the Government is not represented on the Board of the Reserve Bank of South Africa and has no way of influencing South African monetary policy where it adversely affects the Botswana economy. Botswana does not receive the interest on the monetary reserves held by the Reserve Bank as backing for the currency in circulation in Botswana and Botswana has no share of the fiduciary issue of the Republic. During the Plan period, the Botswana Government will seek to negotiate a more favourable arrangement. Thus Botswana's economic dependence on South Africa is great. It is considered to be in the interest of both countries to transform this dependence into a relationship of inter-dependence. Despite the differences in political and social systems, and the disparity of wealth and resources between the two countries, and given the close economic links, Botswana and South Africa have achieved, and wish to maintain, a stable relationship based on inter-dependence, co-existence and mutual non-interference.

Allocation of Funds:

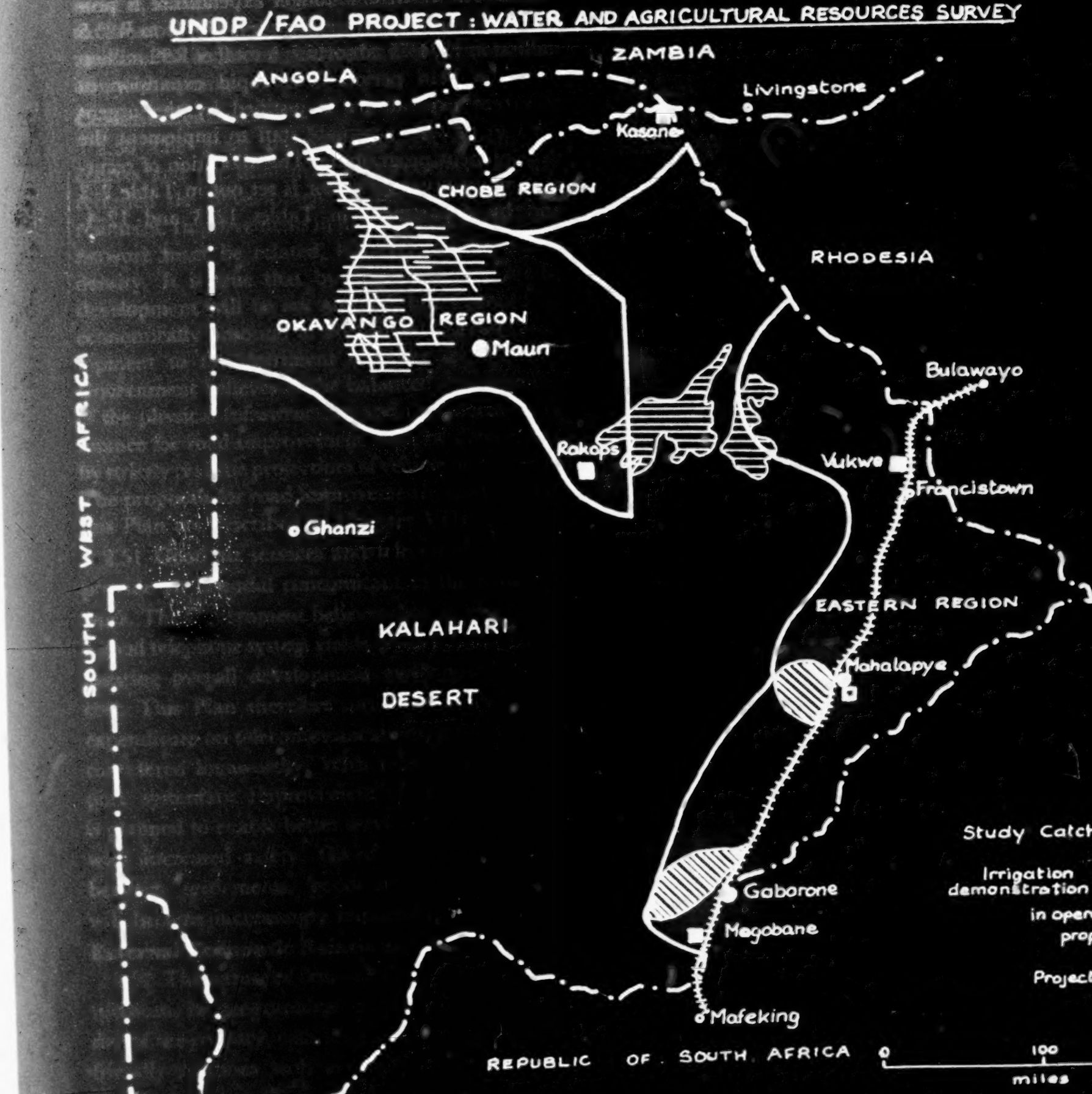
2.55 The details of the proposed public capital expenditure programme are given in Part II of the Plan. The allocation of funds between departments is summarised in Table 12–1, and between sectors in Table 2–2. The programme envisages a target capital expenditure over the Plan period of R9 million, of which some R35 million will be spent on the Shashi Complex. Private sector capital formation is projected to total about R125 million for the same period, but the precise figure will depend on mining developments in the North East District.

2.56 The sectoral analysis indicates that 60% of capital expenditure will be spent on physic

infrastructure. The second largest allocation goes to social infrastructure of which a very large part will be spent on education and training to develop the country's manpower resources.

2.57 The main factor determining the allocation of funds is the need to provide basic infrastructure for mining development. Investment in education and training has been determined by manpower projections based on a target of self-sufficiency by the 1990s. Investment in other sectors has been planned to achieve an integrated and co-ordinated advance aimed at fulfilling the detailed sectoral objectives described at length in the chapters which follow. It has not been possible at this stage to specify all the projects to be implemented in the last three years of the Plan; R18 million therefore remains unallocated.

2.58 The recurrent budget expenditure is projected to rise from R15 million in 1970/71 to R25.5 million in 1974/75, absorbing a total of R99 million over the Plan period. The rapid expansion in recurrent expenditure is justified by the urgent need to provide adequate staff to implement the development programme. The allocation of recurrent expenditure by sector is set out in Table 2–3 and by department in Tables 12–3 and 12–4.


UNDP /FAO PROJECT : WATER AND AGRICULTURAL RESOURCES SURVEY
ZAMBIA
ANGOLA
Livingstone
Kasane
CHOBE REGION
RHODESIA
OKAVANGO REGION
Maun
Bulawayo
Rakops
Vukwe
Francistown
Ghanzi
EASTERN REGION
KALAHARI
DESERT
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REPUBLIC OF SOUTH AFRICA
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Chapter III – Water Resources

General

3.1 Shortage of water supplies is a major limiting factor in the development of Botswana. It limits the number of cattle which can be supported, the extent of arable farming which may be safely carried on and the development of urban centres and their associated industries. Water problems affect the lives of the mass of the population more, probably, than any other single factor. Natural watering points for both stock and humans are few and far between. They are seldom permanently reliable. The crowding of stock around the best water sources results in devastating over-grazing especially in periods of drought, which are regrettably frequent.

3.2 In and given year, considerable water resources do exist and can be developed. The whole country lies in the summer rainfall belt, the rains generally beginning in late October and ending in April. Average rainfall for the whole country is 18 inches, but in the extreme south west the average is less than 10 inches, and in the extreme north east it is more than 28 inches and in any given place the annual rainfall may be less than half or more than double the average for that area. In many areas therefore the problem is more that of storage and distribution than of absolute lack of water resources.

3.3 The most obvious unexploited water resource is the Okavango Delta which on average annually receives some nine and a half million acre-feet of water from Angola. However in economic terms the run-off from the ephemeral rivers of the Limpopo Watershed is of greater immediate significance. The bulk of the population live in the eastern part of the country and the area will lead development during the plan period. It has been estimated that every year Botswana experiences a run-off of about one million acre-feet from this area. Storage dams and weirs would, if properly placed, considerably reduce this annual loss of water. Although the rivers flow for only a few days each year very large quantities of water can be retained, as has been demonstrated by the construction of the Gaborone and Lobatse dams. In the larger ephemeral rivers, millions of gallons are stored in the sand of the river bed, and may be extracted from wells.

3.4 Over three quarters of the country is covered by Kalahari sand, which absorbs all the rainfall without any run-off. Grass grows with relative abundance here but there are no streams at all. In certain localities shallow pans hold water for much of the year. Only in a few places can water be found in wells at a shallow depth.

3.5 In many parts of the country, excluding the central Kalahari, supplies of underground water can be found and several thousand boreholes have already been drilled in Botswana, opening up vast areas to grazing. Boreholes, coupled in some areas with sand extraction from river beds, have made possible the development of nearly all of Botswana's towns. Due both to the limited water production of individual boreholes and the limitations of the local groundwater reserves tapped by them, most towns have now outgrown their water supplies and suffer severe seasonal water shortages with no relief in sight other than through the development of costly storage schemes.

3.6 In view of the scarcity of water it is essential that this resource be treated as an economic asset. The Government is determined that the users of water should themselves meet whatever part they can reasonably be expected to bear of the cost of any water supply – as only by this means can the population be brought to realise the economic value of the service and the need to conserve water and eliminate waste. If a subsidy must be provided, then it is Government policy that it be clearly identified in order that the true costs of water collection, treatment and distribution be made known.

3.7 Government recognises the need to subsidise certain aspects of water development and presently does so by providing borehole drilling and equipping services at below cost, by charging sub-economic tariffs at Government water supplies, by grants to Local Authorities, and in other less obvious ways. What is now required is a better determination of the economic value of direct and indirect benefits arising from improved water supplies, in order that the justifiable level of subsidation can be assessed and that the methods of subsidisation be rationalised.

3.8 By the Water Act of 1967 a Water Apportionment Board charged with the allocation of Water Rights was established, and by this means the orderly development of water resources will be achieved. The Act contains powers relating to the control of river pollution and the establishment of hydrological stations, and in effect gives priority in water usage to the domestic requirements of humans and stock. In January 1969 a Department of Water Affairs was created around the skeleton of the Water Branch of the Ministry responsible for Water Affairs, and its Director was appointed Water Registrar under the Act. In July 1969 the previous Inter-Ministerial Water Development Committee was abolished on the establishment of a Natural

Resources Committee under the chairmanship of the Vice-President. Government's technical and executive services in the field of water resources development are however dispersed widely, with varying Ministries and Departments having responsibility related to sources (i.e. surface water or ground water) or to usage (e.g. Urban Supplies, Rural Supplies, Irrigation Supplies or Industrial Supplies) or to function (e.g. design, construction, operation, maintenance).

3.9 The Geological Survey and Mines Department undertakes the exploration of underground water resources as part of its general geological survey activities, and also runs an organisation for the drilling of boreholes. Apart from the boreholes sunk by private persons using their own resources, boreholes are drilled either for Government use or for stockowners under the Borehole Repayment Scheme. During the next three years it is planned to drill and equip 75 boreholes under the latter scheme. The cost will be met through loans from the National Development Bank awarded to either individuals or syndicates of farmers who can offer the necessary security. In addition to the Borehole Repayment Scheme about five boreholes will be required to be equipped each year at Government expense for special needs.

3.10 Borehole equipment is only efficient if it is properly maintained. Government would like to see private enterprise providing the public with borehole maintenance services, but until private mechanics are more widely available and until borehole owners achieve a higher level of mechanical expertise it remains essential for Government to operate a maintenance service. Government is building up a semi-commercial borehole maintenance service charging fees, which will be gradually increased. Although a degree of subsidy is required initially, the intention is to make the service self-financing in the long run if it is adequately supported by borehole-owners. Preliminary indications are that the concept of "preventive maintenance" in which the scheme is founded is not acceptable to borehole owners, and that the scheme may have to be re-shaped to provide only for breakdown services on call.

3.11 Hydro-geological research work will be continued as rapidly as available funds and staff will permit. The long term objective is to produce an accurate and detailed map of all Botswana's underground water resources. This is particularly necessary for long term socio-economic planning especially as very large tracts of the country cannot be supplied from surface water sources. This work involves geophysical surveys; research into new geophysical methods; the drilling of observation boreholes; the study of the relationship between pumping, drawdown and rainfall;, the dating of groundwater using naturally occurring radioactive isotopes; and the systematic chemical and temperature analysis of waters from all boreholes.

Surface Water

3.12 Proper planning of the use of surface water can only be undertaken once comprehensive hydrological data is available to provide a sound basis for the design of dams and other water development schemes. The information presently available is totally inadequate. To meet this need an interdisciplinary investigation project has been initiated by the Government and the United Nations Development Programme which will include the setting up of a hydrological section as well as carrying out agricultural demonstration and training (See Project ID02 in Part Two).

3.13 The expenditure of funds on the collection of hydrological data can only be justified if the knowledge acquired will open up new opportunities for productive investment or enable the Government to provide essential services more cheaply than would otherwise be possible: Surface water resources need to be harnessed to supply domestic requirements, industry and mining, railways, irrigation agriculture, and livestock. Moreover, it is vital to concentrate hydrological data collection in those areas which seem to have the greatest economic potential. For this reason it has been considered essential to combine hydrological investigations with other pre-investment studies. There are two regions where the systematic collection of hydrological data has been started: (a) in the Okavango River Drainage System and (b) in the Limpopo Basin.

3.14 Preliminary soil surveys in the Okavango Delta area have indicated that there are large areas of potentially irrigable land where maize, rice, cotton, jute and many other crops could be successfully grown if the associated economic, engineering, social and transport problems could be solved. Furthermore, in the long term the country will need to draw upon the vast water resources of the Okavango for other purposes and, indeed, this has already begun with the abstraction of water from the Botletle River for use in the diamond mines at Orapa. An investigation of the hydrology of the Okavango Complex has therefore been started and hydrological gauging stations are being set up at various points within the swamp and on rivers in the area for the collection of the necessary data. It is also proposed to carry out soil surveys in selected areas and to study the swamp vegetation with a view to devising methods of controlling the flow through the area.

3.15 The Limpopo Basin contains the main commercial and administrative centres, many of which are critically short of water. Over 80% of the population lives in this area. Furthermore, some 16,000 acres of potentially irrigable land have been identified in preliminary soil surveys. The Government, therefore, in this Plan, is establishing hydrological gauging stations on the main rivers flowing into the Limpopo. In addition, it is intended to proceed with detailed planning of a number of pilot irrigation areas to demonstrate to the local farmers the advantages and techniques of small scale irrigation farming.

3.16 The best urban water supply at present is found at Gaborone where the estimated dam yield is more than adequate to cover forecast demands in the next decade. A continual programme of treatment works expansion, distribution mains extensions and allied works to provide for the normal expansion of the Capital has been allowed for in the plan. Throughout 1969, a crash programme of borehole re-equipment and drilling has been undertaken in Lobatse in order to avert a crisis brought about by the near total exhaustion of Nuane Dam. During that year consultants were engaged to report on the long term water supply situation, and their Stage I report indicated two alternatives:

(i) Construction of a dam on the Tsiklane River and a pipeline connecting it to the treatment works at Nuane.

(ii) Construction of a pipeline and associated pumping plant to convey water from Gaborone dam to Nuane.

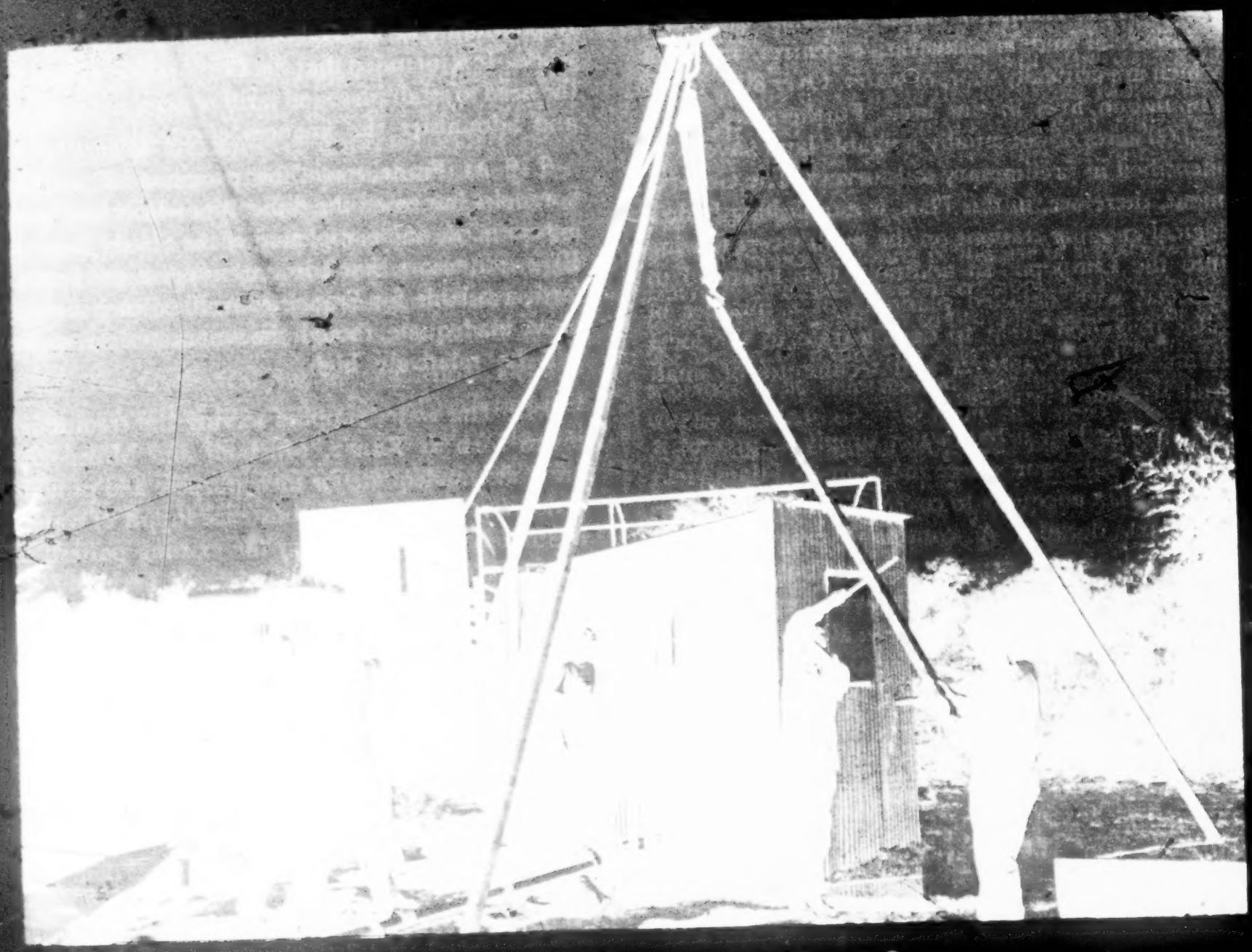
A detailed feasibility study indicated that the construction of a pipeline linking Gaborone Dam with Lobatse was the better solution. This solution provides greater flexibility in the timetable for construction, greater security of supply, and there are unknowns in the Tsiklane scheme, such as geological foundation, which if unfavourable might lead to an increase in costs.

3.17 Since the Nuane Dam received little recharge in 1969/70 it is necessary to commence detailed design and the preparation of contract documents so that the construction of the pipeline may be commenced in early 1971. This latter date is critical if the pipeline is to be in service before the groundwater supplies are exhausted, and assuming no effective recharge of groundwater or of the Nuane Dam in the wet season 1970/71. It is estimated that under normal conditions Gaborone Dam, together with Nuane Dam, could meet the combined demand for water in Gaborone and Lobatse until 1986. A new Water Utilities Corporation is being established which will take over responsibility for the Gaborone and Lobatse Waterworks. It is intended that the Corporation will meet the need to establish sound tariff policies and control and administer the finances effectively.

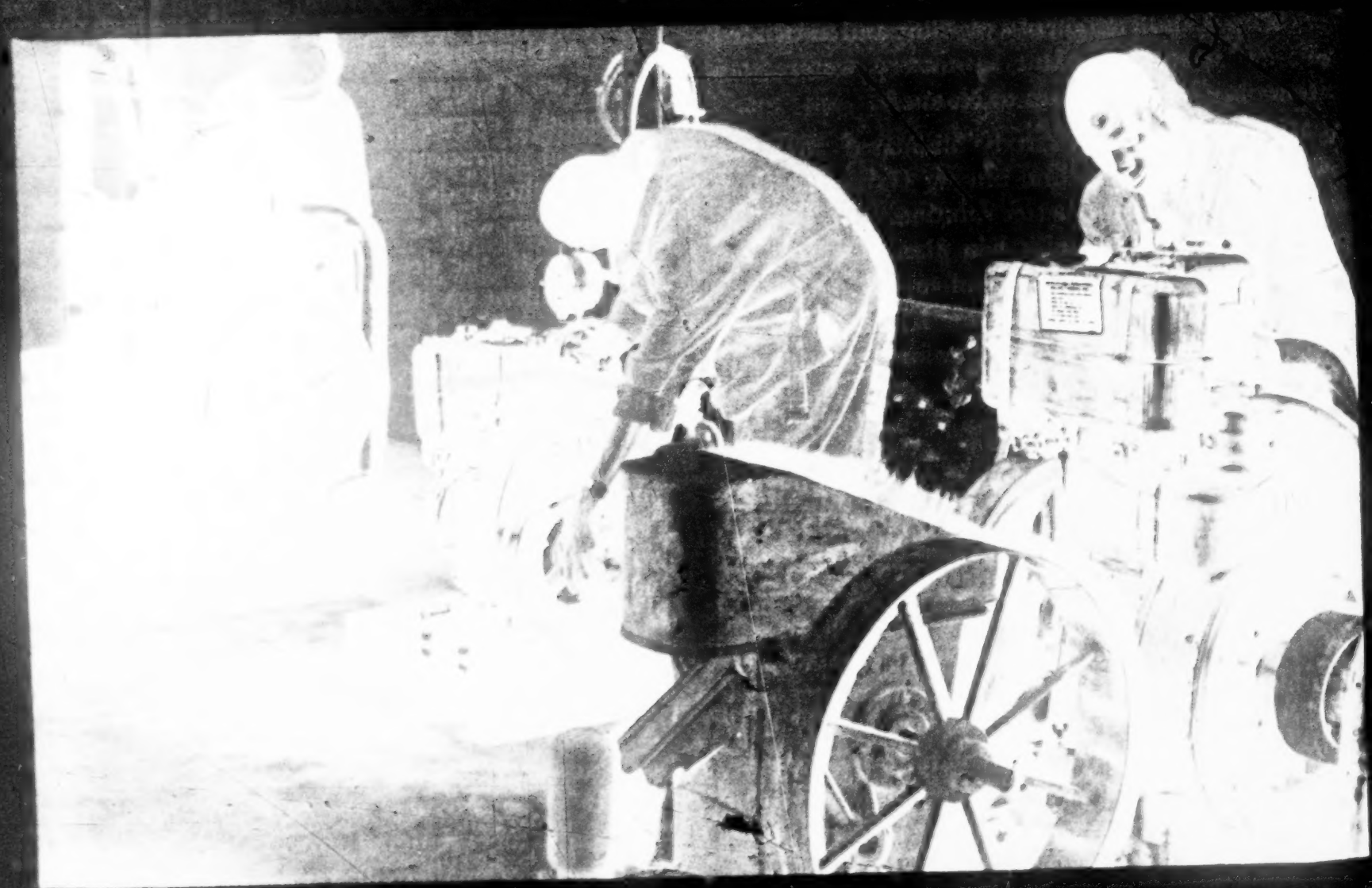
3.18 At Francistown the provision of further boreholes has eased the difficulties which had been experienced, and completion of the Shashi Dam in 1972 will ensure that adequate supplies are henceforth available for Francistown, if existing sources prove inadequate, though the unit cost of this water will be relatively high.

3.19 The water supplies serving the traditional towns such as Kanye, Mochudi and Molepolole are quite inadequate for their purpose and provide little more than a bare subsistence supply of water; continued development on the existing pattern of scattered borehole sources operated variously by Government, District Councils and private individuals is no longer tenable due to limitations on groundwater reserves and unco-ordinated operations and resource management. The development of new supplies is urgently required, and in many cases suitable dam sites have been located and preliminary plans prepared. Unfortunately a number of factors combine to make the development of adequate supplies extremely expensive: dam sites in Botswana, due to topography, require a high capital outlay per unit of firm yield surface sources require a high degree of treatment – pumping heads are usually high and gravity supplies extremely rare – distribution system costs are high due to lack of planning and will need further expenditures as Town Planning becomes effective – and water demand is extremely erratic due to the traditional seasonal migrations of a high percentage of inhabitants to the lands. Consequently unit costs of water production will be high and capital requirements substantial; the development of such new supplies is dependent on the extent to which Government can make capital provision and the level at which consumers can afford to pay for water, as this will determine whether or not recurrent subsidies can be justified.

3.20 Smaller centres such as Maun and Ghanzi, which are of very considerable regional importance, are generally not critically short of water at source as are the major traditional villages, but they suffer from inadequate distribution and storage facilities and do not have the stand by equpment needed to protect against shortages when breakdowns occur. A programme of properly designed impovements is planned to enable an adequate standard of service to be provided and to permit rational expansion to meet national growth and development. In the case of smaller villages which are principally the responsibility of District Councils, it is planned



A Borehole maintenance unit at work at Mogoditshane.



Trainees at the Department's Training Centre in Gaborone working on three types of pumps.

to provide through the Department of Water Affairs for technical field services to be available to assist the Local Authorities prepare and implement their development plans.

3.21 Water supplies in rural areas are mainly drawn from boreholes. These have an average capital cost of R3,000; there are also maintenance and running costs to be met. Furthermore in many places the underground water is either too deep or too saline to be used. The construction of haffirs and small earth dams offer an alternative source of water which may be cheaper but is less secure. A mechanised dam building unit capable of constructing small dams has been established. This will not only permit the opening up of new grazing, but will also allow farmers to reside permanently at their "lands" and reduce the demand for water in the large villages. The unit is operated by the Agriculture Department and is further described in Chapter IV.

3.22 Large areas of the country, though producing relatively abundant grass, are deficient in dam sites and either have no underground water or suffer from unusably saline borehole water. It is intended to use experience which has been gained in other parts of the world to develop desalinisation processes, solar distillation units, large scale artificial catchments and "bag" storage techniques etc., where this can economically be considered, to provide water supplies to open up these grazing areas and meet the needs of the inhabitants.

Underground Water Supplies

3.23 Emphasis has long been placed on the development and utilisation of underground water resources. Since 1929, when drilling was commenced by Government, over 2,200 Government boreholes have been drilled. Approximately the same number of boreholes has been drilled by private contractors throughout Botswana. This on development of groundwater supplies resulted mainly from the fact that there is virtually no run-off over vast stretches of the country with its low rainfall and highly absorbent mantle of sands of Kalahari type. Despite the building of dams in the Gaborone and Lobatse areas it is estimated that at least 75% of Botswana's human and cattle populations are still wholly or partially dependent on groundwater. Since 1955 the Botswana Geological Survey has played an increasingly important role in the exploration of underground water resources and in April 1959 assumed full control of the Government Drilling Branch. There is an obvious need for a systematic collection of data on hydrological problems and research into various aspects of the underground water resources of the country, particularly in respect of safe pumping rates, groundwater reserves, replenishment rates, and the perfection of improved geophysical techniques for detecting sub-surface water.

3.24 The Geological Survey drilling section drills approximately 100 to 130 boreholes a year using four highspeed compressed air-operated and seven percussion drilling rigs. The majority of these boreholes are drilled for Government or District Council use or for stock-owners under the Borehole Repayment Scheme. During the next three years it is planned to drill and equip 75 boreholes under the latter scheme. The cost will be met through loans from the National Development Bank awarded to individuals or syndicates of farmers who can offer the necessary security. Recently the extremely rapid demographic growth rate, rapidly rising standards of living, improved farming methods and the prospects of a major mining economy have led to an enormous increase in the demand for water. In order to cope with this demand it is planned to increase the present drilling staff by 50% over the next five years.

3.25 Groundwater yields in Botswana are generally not large and only 17% of boreholes yield more than 2,000 gallons per hour, while 28% of boreholes only yield 100 to 500 gallons per hour. The total minimum yield of all Government boreholes drilled to date is over 1,000,000 gallons per hour. The average depth of boreholes drilled is 320 feet. Modern geological and geophysical techniques are employed by the Geological Survey to assist the location of the most favourable drilling sites. This has resulted in an increase in the success rates of from 45 to 71 percent while average yields of boreholes have improved from 1165 to 1400 gallons per hour. Drilling rates have increased despite the fact that drilling is now taking place in the more difficult areas. The Geological Survey is currently using some of the most modern geophysical techniques in Southern Africa.

3.26 The Government considers it highly desirable that the true cost of providing water should be brought home to cattle owners. It is intended that this will be achieved by placing all boreholes provided by Government on a repayment basis and insisting that Government's maintenance service is fully paid for. Placing water supplies on an economic basis would create an added incentive for stock-owning to be treated as a commercial activity.

3.27 Hydrogeological research work will be continued as rapidly as available funds and staff will permit. The long term objective is to produce an accurate and detailed map of all Botswana's underground water resources. This is particularly necessary for long term socio-economic planning, especially as very large tracts of the country cannot be supplied from surface water sources, and also

as much of the available surface water resources in eastern Botswana will soon be fully utilised. Detailed groundwater studies are being undertaken in the Lobatse, Molotoana, Mosomane, Serowe, Francistown, Ghanzi, Orapa and Letlhakeng - Morwamosu areas. Particularly detailed studies are being carried out in Serowe and Lobatse. These studies include the relation of changes in borehole water levels to the amount of water pumped and to rainfall. Automatic water level records have been installed on a number of boreholes. Results have so far given important data on storage capacity, sources of recharge, and flow rates of the Serowe and Lobatse aquifers. Radiocarbon dating of groundwaters in the Kalahari has revealed groundwater ages up to 25,750 years and indicates that little modern recharge is taking place in this area. In Lobatse detailed studies for more than 15 years have enabled estimates of the various groundwater basins to be calculated and has enabled the safe draft from the Nuane Dam to be doubled as well as giving the township an 18 month emergency standby reserve. In Serowe groundwater research has shown that there is at present no marked depletion of groundwater supplies, but serious shortages can be anticipated in the future when the present estimated per capita consumption of 1.25 gallons per day for ninety-seven percent of the population rises to that of more developed countries. In addition to this research, detailed aquifer evaluation pump tests have been carried out at Orapa, Selebi-Pikwe and Lobatse to determine storage and transmissibility; observation boreholes have been drilled in the central and northern Kalahari areas and isopiezometric contour maps drawn up and flow lines deduced. It is hoped that the acquisition of a borehole logger in the near future will yield invaluable information on the nature, thickness, porosity and salinity of aquifers and hence will be of considerable use in the drawing up of a groundwater inventory for Botswana. Other work involved in the groundwater research programme for 1970/75 includes detailed integrated geophysical surveys, research into new geophysical methods and interpretational procedures, improved data storage and the systematic chemical and temperature analysis of waters from all boreholes.

Chapter IV – Agriculture

Major Policy Objectives

4.01 The two most important objectives for agricultural production are the rapid development of the livestock industry and the achievement of national self-sufficiency in the production of basic foodstuffs.

4.02 For the next decade, and longer, even with the maximum possible diversification of the economy, agriculture will remain the most important source of domestic income and employment. Thus if Botswana is to develop rapidly and if the mass of the population is going to benefit from this development, agriculture must play a dynamic role as a major spearhead of development. A rapid advance in the agricultural sector can be achieved if:

(i) animal husbandry standards are raised and a more commercial attitude to livestock is adopted;

(ii) improved dry land farming techniques are more widely practised; and

(iii) more land is brought into use for both crop and livestock production.

4.03 Botswana is primarily a rural country committed to achieving as rapid an increase in average income per head as the available resources permit. The agricultural development programme must therefore ensure that rural income levels rise as fast as possible. The present unequal distribution of wealth and education in the rural sector makes this task difficult and militates against the longer term national aim of income equalization. It is however planned to ensure that rural incomes do rise even if this means that an enterprising few will make most use of the assistance available from Government and in the short term become more prosperous than the mass of the rural population. The long term objective will remain to raise the general level of rural incomes, and to improve across a broad spectrum of activities the quality of rural life.

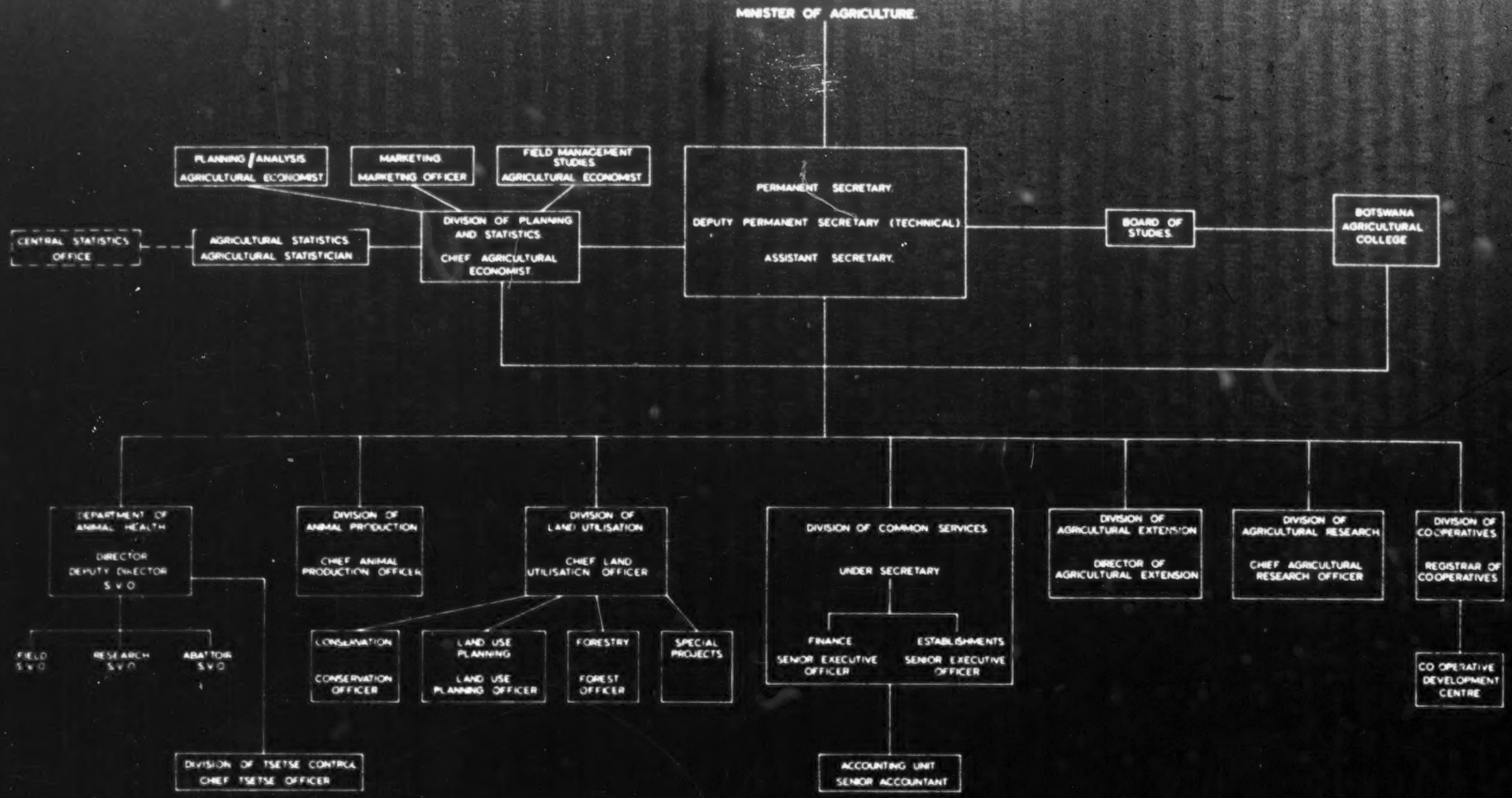
4.04 Botswana is mainly suitable for cattle farming but traditionally has a large arable farming sector. In terms of comparative advantage it might be wise to concentrate on the development of only the livestock sector. To do so however would immediately relegate the vast majority of the population to a position of permanent poverty because their only means of livelihood is arable agriculture. Thus it is not sufficient to develop the livestock industry and to rely on food imports for the human population. To do so would be to do much less than is necessary if agriculture is to fulfil its designated role. Resources must be employed on the expansion of crop production.

Organisational Framework

4.05 The Ministry of Agriculture has recently been reorganised and the new organisation will be progressively implemented from 1st April, 1970. The new structure is set out in Table 4.1 This reorganisation is designed to facilitate a more profitable and efficient utilisation of the limited technical and scientific manpower available. The new structure gives the Minister effective control over all matters that come within his portfolio; this could not be achieved under the previous system whereby semi-autonomous Departments operated in a loose association with the Ministry. These have been replaced by a series of functionally distinct but inter-related divisions. The Ministerial secretariat has been strengthened and the planning function of the Ministry has been improved and formalized by the creation of a Division of Planning and Statistics. A Division of Common Services has been created in order to effect economies in administrative overheads and to relieve professional officers of administrative detail.

4.06 A major objective of the new Division of Planning and Statistics will be to assemble as rapidly as possible a corpus of reliable statistical and economic data so that projects can be assessed in a meaningful manner and the rising level of resources devoted to agriculture can be rationally allocated and utilised in the manner most likely to achieve rapid development in the agricultural sector.

Table 4.1 Organisation of the Ministry of Agriculture



Allocation of Resources

4.07 Details of the investment programme in the agricultural sector for the period 1970 – 75 are set out in Part II of this Plan. These details form part of a national strategy for agriculture which has not yet been fully documented but which is based on an increasing emphasis on land use planning.

4.08 A preliminary agro-ecological map of Botswana has been prepared and during the next few years this will be progressively upgraded and improved. An important object of this type of overall land use study is to identify those areas of highest agricultural potential in terms of both the physical environment and the distribution of rural population.

4.09 At present and in the immediate future capital investment in agriculture will be influenced by the need for Government to improve the agricultural services which it offers to the rural community. In view of the existing lack of agro-economic and statistical data this is the only reasonable approach possible but Government is conscious that it is undoubtedly not the most efficient and profitable method of allocating resources.

4.10 Physical planning for agriculture will increasingly give greater emphasis to the regional or geographic spread of investment. Government is convinced that if the scarce resources available to it are systematically applied to areas of relatively high potential more dramatic results will be achieved than by applying resources over a wider area.

4.11 Government recognises that in promoting this strategy, careful attention must be given to the necessity to conserve natural resources. In order to maintain a high level of sustained agricultural production and to avoid the necessity to implement expensive land reclamation programmes in the future it is essential to maintain a careful balance between exploitation and conservation.

4.12 Government's intention is to promote a stable agriculture by providing for the conservation of the soil and vegetation and the maintenance of soil fertility and to stimulate the development of agriculture in accordance with accepted principles of good land management and good husbandry. An Agricultural Act is being drafted at present and will be brought into force during 1970/71. This legislation will provide the legal backing to enforce good land management and conservation measures when necessary but Government is conscious of the importance of conservation education and will promote this on as broad a front as possible. With regard to the wider issue of the conservation of natural resources in general, a Natural Resources Co-ordinating Committee was established in 1969. This is an inter-Ministerial body and has as its principal duty the task of advising on the methods by which natural resources can be utilised in the most productive manner.

Land Tenure Reform

4.13 The prevailing systems of land tenure have been described in Chapter I. In general these systems contain no insuperable constraints to the development of arable agriculture but the communal usage of grazing land is a serious constraint which militates against the prevention of overstocking and the upgrading of livestock by selective breeding. The fencing of grazing land or of selected areas of such land, usually considered necessary for good animal husbandry is customarily forbidden.

4.14 The traditional systems contain many desirable social features, the principal one being the right of any tribesman to be allocated land for agricultural purposes. However because of the system of inheritance arable holdings often become segmented which limits the advantages which can be achieved through scale economies. In addition the ownership of the land remains vested in the tribe and not in the individual to whom it is allocated. This might operate as a constraint as far as the larger farmers are concerned because this lack of security of tenure inhibits the investment of capital in improvements and the use of land as collateral for the raising of commercial credit. Another drawback of the present system of land allocation is that the physical separation, frequently by large distances, of arable from pastoral areas, makes the introduction of integrated farming systems difficult.

4.15 Government is convinced that rapid and sweeping reforms in the land tenure system would be harmful. It is however apparent that modifications in the tenurial systems, particularly in grazing areas, are needed, and individuals or groups of individuals should be granted exclusive grazing and watering rights over defined areas. Government is nevertheless mindful of the need to avoid creating a situation in which most of the land is owned by or is allocated to relatively few wealthy people and consequently the creation of a large landless class.

4.16 Much of Botswana lies outside the traditional areas. In these large areas of mainly undeveloped State Land which cover about 100,000 square miles Government can introduce whatever land tenure system it deems appropriate. Most of these areas are suitable only for cattle ranching. Much thought is being given to the type of land tenure which should be adopted in these areas and no final decision has yet been made. It is certain however that some form of individual title will be introduced in these areas. It is not certain however

PROJECT AREAS
ANGOLA
ZAMBIA
RHODESIA
SOUTH WEST AFRICA
SOUTH AFRICA
G
S
Existing Trek Routes
Proposed Trek Routes
Veterinary Quarantine Camps
Proposed Quarantine Camps
Pilot Settlement Scheme Areas
Possible Second Phase Extensions
Holding Ground Sites
Actual and Proposed Game Reserves
Veterinary Cordon Fences
Planned Disease Control Fence
Freehold Farming Blocks
Botswana Agricultural College
Demonstration Ranch
Livestock Improvement Centre
Government Ranch
Artificial Insemination Centre
Planned Artificial Insemination Centre
Livestock Advisory Centre
Research Station
Ruma Training Centre
Planned Kuru Training Centre
Planned Ruo Irrigation Scheme
District Extension Office
District Veterinary Office
Fisheries Headquarters
BMC Botswana Meat Commission
Cooperative Field Office
Planned Cooperative Development Centre
Francistown
Selebi-Phikwe
Palapye
Serowe
Mahalapye
Mochudi
Molepolole
Gaborone
Lobatse
Kanye
Mafeking
Ramoutsa/Otse
Ghanzi
Maun
Kasane
Shakawe
Nata
Tuli Concession
Francistown
Bobonong
Mahalapye
Molepolole
Kanye
Lobatse
Gaborone
Mafeking
Ramoutsa/Otse
Ghanzi
Maun
Kasane
Shakawe
Nata
Tuli Concession
50
miles
100

that the tenurial systems which will eventually be introduced in the largely underpopulated and under-utilised pastoral areas of the West will be suitable for adoption in the more heavily populated areas in the East and eventually two distinct types of land tenure systems may emerge.

4.17 The allocation of State Land will be controlled by a Land Settlement Board which Government proposes to establish by legislation in 1970/71. The allocation of land in the traditional areas was previously the responsibility of the Chiefs although in practice this responsibility was frequently delegated to ward and family heads. However the Tribal Land Act which was enacted in 1968 and brought into force in early 1970 provides for the establishment of Tribal Land Boards in which all of the rights of land allocation previously held by traditional authorities are now vested. The Act makes it possible for future and existing grants of land to be rationalised, recorded and made conditional. This act is not a major land tenure reform measure but with certain modifications could be used to modify traditional tenurial systems and to remove most of the constraints which operate against the adoption of efficient methods of crop and especially animal husbandry. Government is determined to take appropriate action to reduce the heavy overstocking, which occurs in many areas, particularly in the eastern parts of the country.

Physical Background to Agricultural Production

4.18 The pattern of agriculture in Botswana is largely determined by climate. Because of its position at the centre of the Southern African Plateau, at an average height of 3,300 ft., the climate is continental and semi-arid, with an average rainfall of 457 m.m. (18 inches) ranging from 254 m.m (10 inches) in the South-West to over 711 m.m. (28 inches) in a small portion of the North-East. The rains generally commence in October and end in April; over 90% of the precipitation occurs during the five month summer period November-March, with an average of only 51 rain days per annum. Evaporation rates are often high-over 7 feet per annum - and regular ground frosts occur in the South East by mid-May with occasional frosts over the rest of the country.

4.19 Marked fluctuations in both the monthly distribution and total seasonal rainfall are experienced throughout the main arable areas, and analysis of the rainfall data indicates that in three years out of four a rainfall equal to or greater than 13 inches can be expected, and conversely, below 13 inches can be expected one year in four. Humidity is generally low; in the morning at 0800 hours the relative humidity lies between 55% and 75%, but has dropped to between 25% and 45% by 1400 hours. Tempereratures are highest (and most uniform) during December and January, when maximum temperatures in the east are about 31°C (87.8°F), the diurnal variation at this time being about 13°C (23.4°F). The low rainfall, together with periodic droughts at critical periods in crop growth, accompanied by high evapo-transpiration rates, are the most important factors limiting the possibilities for arable agriculture.

4.20 The soils of Botswana can be divided into the predominantly sandy soils of the Kalahari Plain in the centre and west, and the heavier textured soils of the Limpopo Catchment. The Sub-Desert Soils form the most extensive group in Botswana, and include most of the soils commonly known as Kalahari type sands (most of the parent material of these soils is of aeolian origin). Van der Merwe (1954) described these soils as being very unproductive, but responding extremely well to phosphate, nitrogen and manure. Because of their loose sandy nature and the high rate of evaporation these soils have a low moisture retaining capacity. The soils of the Limpopo Catchment fall into the category ferruginous tropical soils. These soils occur in the areas with a greater rainfall, and where the majority of the population live, and therefore coincide with those areas where arable agriculture is at present practised, and where development is most feasible in the immediate future. The ferruginous tropical soils are generally more fertile than Sub-Desert Soils and many of them respond reasonably well to dryland farming practices.

4.21 The main crops grown under natural rainfall are sorghum, maize, millet, cowpeas, groundnuts and cotton, but a wider variety of crops can be grown under irrigation. A recent survey of plant diseases has revealed that Botswana is remarkably disease-free.

4.22 In the eastern catchment irrigation will only be possible over small acreages watered either from abstraction points in sand rivers or from medium sized dams. But it is unlikely that any dams will be built solely for irrigation. In the North-West however, in the Okavango/Chobe complex, there is a substantial potential for irrigation – estimated tentatively to be about 1.4 million acres.

4.23 The rangeland of Botswana is of a relatively high quality. Most of the grasses are sweet, remaining palatable to cattle during the winter months and therefore having a prolonged feed value. The grasses in the East in general have a higher nutritive value than the coarser grasses which predominate in the Kalahari sandveld areas. In these latter areas the grazing is delicate and if abused by overgrazing is prone to degenerate rapidly and recovers very slowly.

PROVISIONAL VEGETATION TYPES
ZAMBIA
ANGOLA
RHODESIA
SOUTH WEST AFRICA
Francistown
Serowe
Palapye
Mahalapye
Kang
Molepolole
Gaborone
Lobatse
Tshabong
SOUTH AFRICA
Kuruman
Bakspits
miles
Arid Shrub Savanna
Kalahari Bush Savanna
Northern Kalahari Tree and Bush Savanna
Tree Savanna
Sweet Bushveld
Mopane Bushveld
Mixed Mopane Tree and Bush Savanna
Ghanzi Bush Savanna
Forest
Swamp Grassland
Delta and Vlei Grassland

Arable Production

4.24 A striking feature of the agricultural scene in Botswana is the grossly unequal distribution of cattle ownership amongst farmers. Approximately half the national herd is owned by about 10% of the farmers; over 25% of the farmers have no cattle at all and the average herd size for about 90% of farmers is only 13 head. It is clear therefore that an overwhelming proportion of farmers cannot derive an adequate subsistence income solely from cattle. Arable farming, by making more intensive use of the land, is the only feasible way to overcome the difficulties that the average farmer faces in meeting his family's subsistence needs and, even more important, to permit a real advance beyond mere subsistence.

4.25 Information on crop production is lacking in certain respects but Agricultural Surveys were conducted in 1967/68 and 1968/69 which yielded valuable information. For the years prior to 1967 production data consisted solely of estimates made by the Department of Agriculture.

4.26 Throughout the period 1961–66 a series of severe droughts was experienced in Botswana and in the serious drought year of 1965/66 there was, in many areas of the country, an almost total crop failure. During the years between 1961 and 1965 the average annual crop production was about half that during the years immediately preceding the drought. In 1965/66 an estimated 16,700 tons of cereals were produced on a total of 139,500 acres which were planted and reaped. In 1966/67 the advent of good rains produced good yields but from a much diminished acreage as compared with earlier non drought years. The reason for the low acreage planted was that the number of draught oxen had been greatly reduced either because of starvation during the drought or because they were disposed of to the abattoir. In 1967/68 and 1968/69 poor crop seasons were again experienced and in the latter year out of the available arable acreage of approximately 1.2 million acres only 537,000 acres were planted which yielded an estimated 60,000 tons of cereals and 6,000 tons of pulses.

4.27 From the available data it is clear that during the course of the last decade Botswana has moved from a position of virtual self-sufficiency in basic food crops to being a heavy importer of foodstuffs. It is estimated that during the period 1962-68 an annual deficit has occurred of approximately 30,000 short tons of cereals.

4.28 The achievement of self sufficiency in basic food crops is not however an impossible aim. It is of interest to note that during the critical drought year 1965/66 whilst only 4,700 tons of cereals were produced on an estimated 94,500 acres cultivated by farmers outside the Government extension scheme, on the 45,000 acres cultivated by farmers within the scheme 12,000 tons of cereals were produced.

4.29 On the evidence of surveys which have been carried out (Amoral 1964) it appears that, assuming a 1970 population of 648,000, in order to achieve self sufficiency 85,000 short tons of cereals and 13,000 tons of pulses would have to be produced. When compared to the 1968/69 actual production figures of 60,000 short tons of cereals and 6,000 tons of pulses this target of self sufficiency is by no means impossible to achieve.

4.30 In summary therefore Government considers that there is an urgent need to increase arable production for the following reasons:–

(i) to increase the real incomes of those farming families who are unable to obtain a reasonable living from their livestock holdings;

(ii) to achieve a higher degree of self sufficiency in staple foods; and

(iii) to improve the diet of the majority of the population.

4.31 Arable production can be increased in the following ways:–

(*i*) *By increasing the amount of land under cultivation*

It has been estimated that in the Eastern watershed there are 8,170,000 acres of land suitable for cultivation with 2,600,000 acres being particularly suitable. In addition another 1,400,000 acres in the Ngamiland/Chobe complex can by the most conservative estimates be regarded as suitable for cultivation. It appears that not much more than 3% of this land has been cultivated in recent years. At the most conservative estimates it should be possible to produce at least 210,000 short tons of cereals on the land in question. By a marked expansion of the cropped acreage alone Botswana could therefore feed herself.

(*ii*) *By increasing yields per unit area*

Present yields per acre for staple cereal crops are low as indicated in Table 4.2. The yields are low because only 8% of farmers practise improved techniques. Yields achieved by farmers within the Government extension scheme indicate that it would not be difficult to double or even treble average yields and these increases could be achieved without a prohibitive increase in cash inputs. Farm management

Corn being sorted for threshing.

Oxen ploughing in Southern Botswana.

studies have indicated that improved yields and therefore incomes can be obtained by adopting higher management standards. An annual net income from a 25 acre arable holding for a farmer practising improved management methods should be at least R170 per annum excluding any income from cattle.

Table 4.2. Staple Cereals Acreage, Production and Yields

Region		Sorghum			Maize			Millet		
		Acreage	Production (Short Tons)	Yield (lbs/Acre)	Acreage	Production (Short Tons)	Yield (lbs/Acre)	Acreage	Production (Short Tons)	Yield (lbs/Acre)
Ngamiland & Chobe	Total	9,937	1,955	393	6,582	2,389	726	2,924	647	443
	Pure	4,296	874	407	2,636	1,228	932	1,275	510	801
	Mixed	5,641	1,081	383	3,946	1,161	588	1,649	137	166
Ngwato & Francistown District	Total	105,723	13,771	261	26,448	1,020	77	48,716	5,892	242
	Pure	16,548	3,372	407	5,479	569	208	4,293	850	396
	Mixed	89,175	10,399	233	20,969	451	43	44,423	5,042	227
Ngwaketse, Kweneng, Kgatleng and Tlokweng	Total	115,738	13,900	240	28,711	2,025	141	23,159	923	80
	Pure	48,067	6,619	275	12,350	1,702	276	3,543	193	109
	Mixed	67,671	7,281	215	16,361	323	39	19,616	730	74
Barolong and Bamalete	Total	23,190	3,223	278	42,527	8,652	407	71	2	43
	Pure	19,009	2,890	304	37,714	8,169	433	69	2	43
	Mixed	4,181	333	159	4,813	483	201	2	-	-
Boteti River	Total	1,688	61	73	2,116	957	905	786	70	179
	Pure	353	40	226	31	7	485	238	21	179
	Mixed	1,335	21	32	2,085	950	912	548	49	179
Total	Total	256,276	32,910	257	106,385	15,043	283	75,656	7,534	199
	Pure	88,273	13,795	313	58,210	11,676	401	9,418	1,576	335
	Mixed	168,003	19,115	228	48,175	3,367	140	66,238	5,958	180

Notes: 1. Source National Agricultural Sample Survey 1968/69.
2. This Survey did not include the freehold farms.

(iii) *By introducing cash crops*

It was previously considered that cotton could make a major contribution in this field but the successful introduction of this crop has not materialized. After some years of extension effort cotton is grown only by a small fraction of farmers despite the suitable physical environment for this crop in Botswana. The greatest hazard to the growing of cotton is the American bollworm. Whilst other cash crops (potatoes, onions, flower bulbs etc.) are grown fairly extensively by freehold farmers in the Tuli Block and elsewhere they are not grown on any appreciable scale in the traditional areas. Cash crops are not therefore likely to make a significant impact on agricultural productivity during the plan period although Government will continue to encourage the production of suitable cash crops in areas where this appears profitable. It will also study the reasons for the resistance to new crops exhibited by Botswana farmers in order that the extension effort may be made more effective.

(iv) *By the development of irrigation farming*

Preliminary findings of detailed bydrological and hydro-geological surveys indicate that it is probable that the entire surface water resources of the eastern watershed will be needed for industrial and domestic use by 1980 thus leaving little surplus for irrigated agriculture to be practised on a significant scale. Nevertheless the purely technical case for irrigation is strong in view of the existing pattern of climate and production. It is proposed to develop small pilot irrigation projects in the eastern watershed for the purposes of demonstration and data collection. It will be of paramount importance to ensure that before any modest irrigation schemes are developed in the eastern catchment, or elsewhere, that detailed technical and feasibility studies be carried out beforehand in order to decide whether such investments are justified.

In the medium to long term however an enormous potential for the development of irrigation farming exists in the Okavango

TENTATIVE AGRO-ECOLOGY
ANGOLA
ZAMBIA
RHODESIA
SOUTH WEST AFRICA
REPUBLIC OF SOUTH AFRICA
NORTHERN STATE LAND
STATE LANDS
Zone
A Semi-intensive Mixed Farming
B Semi-intensive Livestock Farming
C Semi-intensive Livestock Farming
D Extensive Livestock Farming
E As for Zone D (water to be investigated)
F Low Agricultural Potential (poor water)
G Game Reserves and Parks
H Okavango/Makarikari/ D Complex
Total
220 000
1 690 000
miles

and Chobe areas. Preliminary planning of a small pilot irrigation scheme (see Project A.D.11) in the Chobe area has begun and it is anticipated that this scheme will be implemented early in the Plan period. Development of irrigation farming in the Okavango area will depend upon the gathering of more detailed hydrological and pedalogical information and a better understanding of the entire ecosystem. In addition it will be necessary to provide an improved physical infrastructure in order facilitate access to and the marketing of produce from this area. The development of large scale irrigation farming in the Okavango must therefore remain a long term prospect.

4.32 The poorly developed marketing network for crops in Botswana and the fact that many traders have local monopolies tend to prevent increased production being induced by higher prices. In Addition prices fluctuate markedly during crop years and from season to season. Botswana farmers are most likely to have saleable surpluses precisely when the South African harvest is good and thus at a time when prices are at their lowest. It has been suggested, in order to overcome this problem, that a grain marketing board with central storage facilities should be set up, but specialist advice has led to the rejection of this solution on economic grounds.

4.33 Farmers also tend to have to sell soon after the harvest either as a response to the need for cash or as a result of inadequate storage facilities. As a result the same farmer often has to repurchase grain from the trader at a later date and at a much higher price. This is being overcome by the introduction of simple farm grain storage facilities and pest control measures.

4.34 Crop prices must be considered within first the South African context and secondly within the variable climatic pattern of Botswana. Government believes that the only long run solution to the problems of crop marketing is the introduction of a form of price stabilisation allied to an upgrading of the distribution network.

4.35 In summary therefore it is apparent that any substantial increases in crop production will only be readily achieved by expanding the acreage cultivated and encouraging the widespread adoption of simple yet nevertheless efficient methods of dry land farming. It is apparent that even in the worst drought years experienced during the last decade those farmers who practised improved dry land farming techniques succeeded in making a reasonable living from their arable holdings. It is Government's intention to investigate more intensively improved dry land farming techniques and through extension media to promote their adoption on a wide scale.

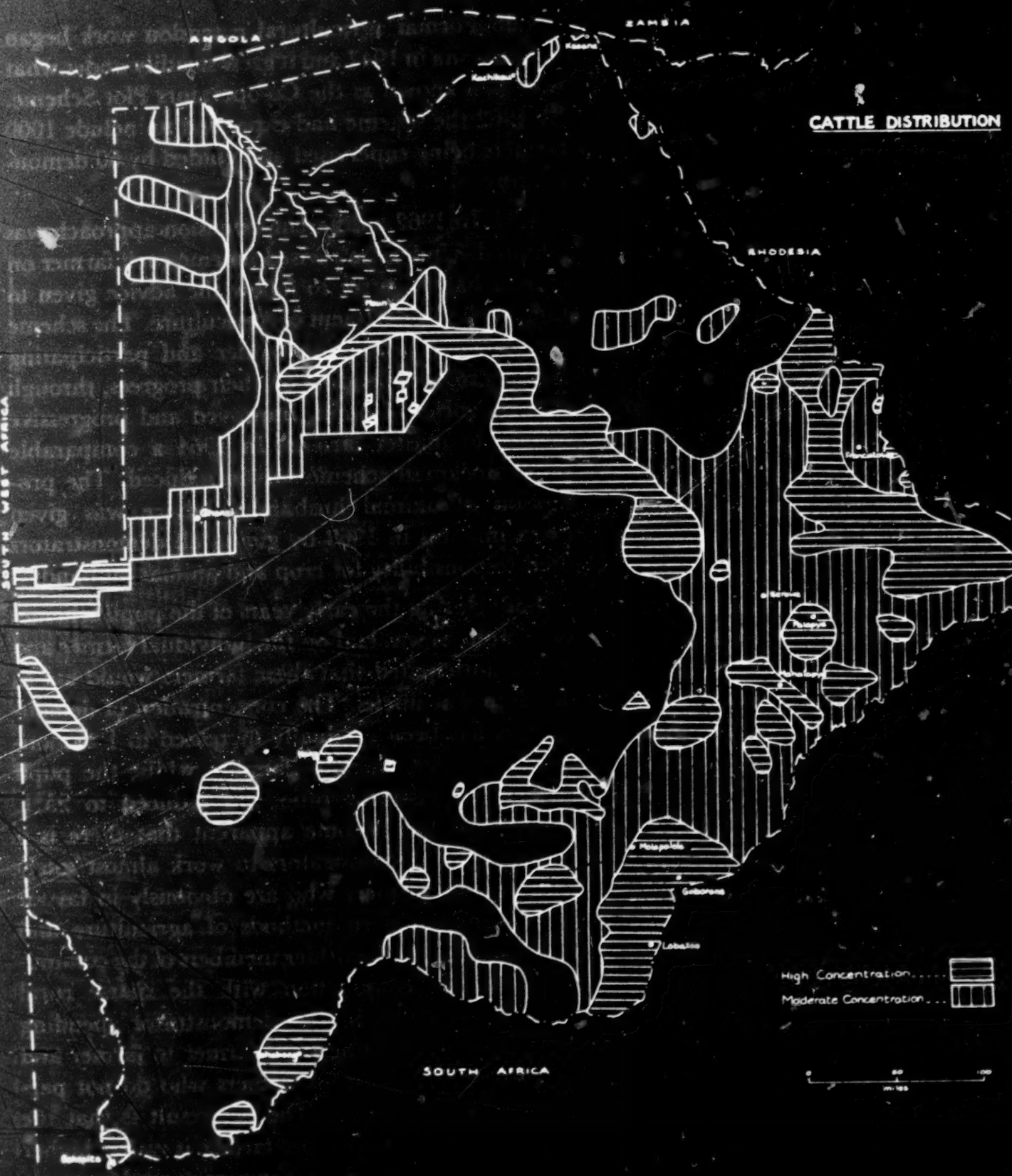
Agricultural Extension

4.36 Formal agricultural extension work began in Botswana in 1947 and it grew steadily under what was then known as the Co-operators Plot Scheme. By 1962 the scheme had expanded to include 1000 farmers being supervised and guided by 60 demonstrators.

4.37 In 1962 a different extension approach was adopted. Under the revised scheme each farmer on joining had to agree to follow the advice given to him by the Department of Agriculture. The scheme laid down a promotion ladder and participating farmers rose, depending on their progrees, through the categories of pupil, improved and progressive farmer to master farmer. In 1964 a comparable pupil stockman scheme was introduced. The promotion of animal husbandry advice was given extra impetus in 1968 by giving all demonstrators dual responsibility for crop and animal husbandry.

4.38 During the early years of the pupil schemes the emphasis was laid on the individual farmer and it was anticipated that these farmers would act as development nuclei. The concentration of demonstrators has been gradually increased to 1 demonstrator per 300 farming families whilst the pupil farmer/demonstrator ratio was reduced to 25:1. However it has become apparent that there is a tendency for demonstrators to work almost solely with scheme farmers who are obviously in favour of adopting modern methods of agriculture and who are often the wealthier members of the community. This in conjunction with the sparse rural population results in the demonstrator spending a lot of time travelling from farmer to farmer and ignoring the majority of farmers who do not participate in the scheme. The net result is that the cost of extension advice per farmer is rather higher than the returns to the scheme measured in terms of increased production. However it must be recognised that this type of agricultural investment has a long gestation period. It is also certain that in some areas the transfer of advice on a neighbour-to-neighbour basis is a significant factor in quickening the tempo of agricultural development.

4.39 The distribution of demonstrators is in accordance with the distribution of physical production factors and the existing concentrations of arable production. From this it follows that if the number of demonstrators is expanded solely to embrace areas of inferior productive potential and less progressive farmers while the present farmer/demonstrator ratio is maintained even lower returns


ANGOLA
ZAMBIA
CATTLE DISTRIBUTION
RHODESIA
SOUTH WEST AFRICA
SOUTH AFRICA
High Concentration.....
Moderate Concentration...

per demonstrator would result. Thus, with particular relevance to the arable side of extension, the short term policy is increasingly to make the maximum use of existing extension resources in an effort to achieve as near optimum results as possible.

4.40 Thus the use of extension media designed to reach larger audiences has been increasingly adopted in recent years. Two rural training centres are in operation. At these centres groups of farmers are given short intensive courses designed as much to stimulate a desire to improve their lives as to impart technical knowledge. During 1969 an estimated 1,400 farmers including 300 women participated in 46 courses at the centres. Government intends to establish an additional three rural training centres at strategic places in Botswana during the plan period.

4.41 An information section operates a mobile film unit and takes an active part in arranging exhibits at agricultural shows. "Bush Schools" have been established to serve as centres at which group instruction can be given. This section also operates a very popular farm broadcasting scheme in conjunction with Radio Botswana. Daily programmes are broadcast. This scheme was given impetus by an initial free distribution of 2,000 radio sets donated for this purpose by the United Kingdom Committee of the F.F.H.C.

4.42 In the field of animal husbandry seven demonstration ranches/holding grounds have been established and farmer's days are frequently held at these centres. To reach greater numbers of farmers 3 mobile animal husbandry teams have been set up.

4.43 It is planned to keep the extension service under constant review so that further adjustments or concentrations can be made in order to increase the effectiveness of the service as a means of increasing agricultural productivity.

Livestock

4.44 Livestock and livestock products currently account for approximately 75% of the country's exports and provide the principal source of cash income in the rural sector. The livestock population during the years 1960 – 1969 has been estimated as follows:

	Cattle	*Sheep*	*Goats*
1960	1,271,838	88,476	251,179
1961	1,319,127	96,160	273,854
1962	1,351,778	111,524	314,721
1963	1,349,773	127,500	359,614
1964	1,346,533	136,847	378,489
1965	1,097,332	125,335	335,124
1966	916,229	151,133	398,458
1967	1,104,229	211,764	646,842
1968	1,250,209	231,336	703,254
1969	1,432,863	332,478	862,504

4.45 The figures for livestock populations are fairly reliable and provide a rough measure of the numerical variations which have occurred in the national herd during the past decade. There was a severe reduction in the cattle population during 1965 and 1966 estimated at about 30% of the national herd. This was a direct consequence of the prolonged drought which resulted in large numbers of cattle dying and large numbers being slaughtered in order to forestall death from starvation or to provide farmers with much needed cash. Following the better rains between 1967 and 1969 the national herd seems to have made a good recovery but precise data is lacking.

4.46 Government is conscious that the lack of reliable statistical data concerning the national herd forms a serious obstacle to planned development. During 1970/71 the first statistically planned national livestock census in Botswana will be undertaken. This will provide essential base data concerning the livestock population which has hitherto been lacking.

4.47 Offtake of cattle from the national herd during the period 1960-1969 has been as follows:–

	B.M.C. Throughput	*Live Exports*	*Total*
1960	78,839	8,377	87,216
1961	78,602	12,624	91,226
1962	93,306	18,228	111,534
1963	103,406	27,348	130,754
1964	111,758	15,045	126,803
1965	142,736	19,568	162,304
1966	132,232	16,422	148,654
1967	88,535	7,367	95,902
1968	103,776	–	103,776
1969	93,074	–	93,074

To these totals must be added about 16,000 head per annum slaughtered for local consumption.

4.48 These figures demonstrate clearly the emergency de-stocking which took place during the years 1965 and 1966. The high offtake during these years did not however result in a disproportionate inflow of cash to the rural sector because cattle realized significantly lower prices because of their much reduced weight. In 1966 the average cold dressed weight of cattle slaughtered at B.M.C. was 405 lbs. compared to 500 lbs. in 1962 and 501 lbs. in 1969. Based on the 1969 figures which can be assumed to be approximately normal the percentage offtake would seem to be about 8%.

4.49 The typical Tswana cattle are derived from the Sanga and the lateral horned Zebu type cattle and have evolved in the rigorous environmental conditions which obtain in Botswana. These conditions are characterized by low and erratic rainfall, high temperatures and sparse ground cover with relatively low yields in food output per unit area. The Tswana beast thrives under these conditions because it is characterised by hardiness, good water economy, good heat tolerance, a high degree of adaptability to changing conditions and a marked ability to graze over large areas. It also responds well to good management. Government has always been conscious of the deleterious effects on the national herd which could result from the indiscriminate importation of exotic breeding stock and over the years has discouraged this. This policy will be continued and in addition it is planned to undertake an important research programme designed to produce an evaluation of the Tswana herd. This work will be accorded high priority as it is considered essential to utilise to the fullest extent the valuable pool of genetic material which exists and which is already conditioned to the environment.

4.50 The majority of cattle – about 86% – are grazed in tribal areas under traditional systems of management. Animal husbandry practices are generally of a low standard but it is undoubtedly true that the constraints imposed by traditional systems of land tenure are partially responsible for this. The average age of cattle sent forward for slaughter is at present between 6 – 7 years but there is evidence that traditional attitudes which in general value cattle for prestige or insurance purposes rather than as a method of generating cash incomes are changing. This change in attitudes is encouraged by extension advice and recently the grading system in respect of cattle slaughtered at the Botswana Meat Commission has been modified in order to give increased prices for younger stock.

4.51 It is clear from information obtained in the 1968/69 Agricultural Survey that average herd sizes in Botswana have little relevance in determining development efforts and objectives. Table 4.3 reveals the current polarisation of cattle wealth. It is apparent that the vast majority of the people in the country cannot depend on livestock for their living. People with less than 25 head of cattle would find it difficult to engage in arable activity without borrowing ploughing oxen from better favoured friends or relations. It is also apparent that any form of strictly individual tenure would not quickly benefit almost 90% of cattle owners since their present herds are too small.

Table 4.3 Distribution of Cattle Wealth

Size of Cattle Holding	Number of Agricultural Holders	Total Number of Cattle owned	Percentage of National Herd	Average Size of Holding
None	13,988	–	–	–
1 – 10	9,822	59,712	4.2%	6
11 – 25	11,318	196,293	13.7%	17
26 – 50	6,818	245,947	17.2%	36
51 PLUS	5,808	734,922	51.3%	126
TOTAL	47,754	1,236,874	86.4%	–

Notes: 1. Source. National Agricultural Survey 1968/69
2. This survey did not include the freehold farming areas.

4.52 It is against this background that proposals to modify land tenure systems, to try and remove constraints against the adoption of improved animal husbandry techniques must be considered. It was stated earlier in this chapter that the traditional systems of land tenure militate against the prevention of overstocking and the upgrading of livestock by selective breeding – both fundamental to improvements in animal husbandry practices. But it was also stated, and it is repeated here, that Government is convinced that rapid and sweeping reforms in land tenure systems in traditional areas would be harmful. Government intends to move cautiously and prudently in this field. It is recognised that the physical separation of arable and pastoral areas causes many farmers to leave their livestock in the care of unsophisticated herdsmen and in addition makes the introduction of integrated farming difficult. It is also recognised that the productivity of the livestock industry if measured in terms of return per unit area is low and is unlikely to increase at a dramatic rate.

4.53 It is unlikely that rapid changes will occur in tenurial systems but the level of offtake could rise by an estimated 280% to a level of 285,000 head of cattle per annum from a national herd of 2 million head. These goals could be achieved by raising the calving percentage from its present low level of below 50% to a reasonable 65% and reducing the average age of slaughter stock to between 3 – 4 years. This reduction must not lead to any dimunition in the present average cold dressed weight of cattle slaughtered.

4.54 During the Plan period various specific projects will be implemented to increase and improve livestock production. These will fall into the following 3 main spheres of activity:-

i) animal husbandry extension work;
ii) further water development; and
iii) the opening up of new grazing areas.

These spheres of activity are complementary.

4.55 Animal husbandry extension work has been referred to above. The extension effort in this field aims at disseminating knowledge of simple improved management practices such as correct castration, dehorning, lengthening the hours of daylight grazing, spraying, deworming and the feeding of bonemeal and salt. To reach wider numbers of cattle holders three mobile animal husbandry teams have been established and consideration is being given to expanding this number. To convince farmers of the benefits of grazing control seven demonstration ranches have been established and preliminary results indicate that the net benefit to farmers is approximately R20 per beast over a six month period. Several of the demonstration ranches have attached to them breeding herds which indicate ideal herd structures and breeding practices. The early success of these has led to the planning of a number of large initially state owned holding ranches which will be established by 1974 (see Project L.U.01). In addition to these measures and as a result of a growing realisation that advice is of limited use if the means to implement the advice are hard to find, it is planned to establish a national system of livestock advisory depots where skilled veterinary advice will be available and a wide range of veterinary and animal husbandry requisites will be on sale (Project A.H.03 refers).

4.56 Water and its proper management are vital. Water is provided by wells, boreholes, dams and naturally occurring surface water in pans and streams. The latter are usually adequate during the summer months to permit widespread grazing but in the drier winter months cattle are concentrated around artificial watering points and heavy overgrazing often results. Thus there is a clear need for the expansion of reliable water sources. This will mainly be achieved during the plan period by an expansion of the borehole drilling programme.

4.57 The Department of Geological Survey and Mines is responsible for the development of underground water resources and encouragement is given to farmers to purchase boreholes through a subsidized credit scheme operated by the National Development Bank. In 1967 the Department drilled 44 successful agricultural boreholes, but since then the programme has been severely curtailed by staff shortages and a large backlog of unfulfilled applications has built up at the National Development Bank. This situation has recently improved and a renewed effort will be made throughout the Plan period. The provision of new surface water sources is undertaken by the Dam Building Unit of the Ministry of Agriculture which since 1967 has been constructing an average of about 15 small stock dams per year. It is anticipated that this programme will continue throughout the Plan period in conjunction with detailed land use planning provided that the difficult socio-economic problems that this programme has raised can be overcome. The new Division of Land Utilization which has been created in the Ministry of Agriculture will seek urgent solutions to these problems.

4.58 It is Government's policy to ensure that water is used economically and not wasted and that, in the event of water being subsidised that this subsidy should be clearly identified. It is necessary to encourage people to realise that water has a cost

and must be paid for. This in turn should help to stimulate a more commercial attitude to cattle raising and partially alleviate the problems of overstocking.

4.59 The development of additional water resources will proceed in parallel with the planned opening up of the State Lands. Ecological surveys have revealed that major portions of the State Lands could be farmed and it is Government's intention to develop planned ranching settlements in selected areas subject to the availability of underground water. Detailed studies and evaluations of these schemes have been underway for some time and should result in the first major developments being implemented during 1971 (see Project L.U. 01). It is on the controlled expansion of cattle ranching in the State Lands that the short term growth of the national herd and the associated increased production will depend.

4.60 Specialisation offers great potential for improving total agricultural production. Both the crop and livestock sectors are sub-optimal producers, and the latest statistical data indicate that there are wide regional differences. Nevertheless in several, and particularly, the smaller tribal areas a radical departure from the traditional system is indicated. Here effort will become increasingly directed towards the development of an integrated mixed farming system.

4.61 Allied to this major change will be efforts designed to increase the geographical specialisation of production so that certain areas (e.g. Barolong/ South East Bangwaketse) will emerge primarily as crop producers, others, (e.g. Western State Lands) as livestock breeding districts and yet others (e.g. the Molopo) as centres for livestock fattening. This development is foreshadowed in the changes taking place in the structure of the Ngamiland cattle industry under the influence of changing marketing opportunities.

Livestock Marketing

4.62 In the past the internal marketing of cattle has been largely in the hands of non-African traders who either sold directly to the abattoir or transferred them to fenced farms or to concession areas within tribal areas for fattening. Government has and will continue to encourage producers to market their cattle direct to the abattoir at Lobatse or through licensed agents who receive a fixed percentage of the realised prices. The net result of this effort has been to raise the average level of price to the producer. The organised marketing of cattle is a major problem and is intimately associated with stock theft. It is in order to reduce the incidence of the latter and to promote the former that improved legislation is planned. The introduction of a regular system of auction sales is envisaged which, in addition to providing regularity, will also impart a higher degree of competition to the industry. Similarly the growth of livestock marketing co-operatives already significant in certain areas will be further encouraged.

4.63 Transportation is a major obstacle to the efficient marketing of cattle from the North and West in so far as long overland treks are necessary either to the line of rail for cattle from the North or direct to the Lobatse abattoir for cattle from the West. These long treks (it is over four hundred miles from Ghanzi to Lobatse) result in significant losses of weight and grade despite the lengthy rests at quarantine camps and the availability of water from Government maintained boreholes. The economics of trek routes are the subject of current detailed investigations but it is unlikely that these studies will provide a more economic alternative transport method. Some trucking of cattle does take place, significantly from Ghanzi to Lobatse but the poor state of the roads serves to make this method barely competitive with trekking. Prior to 1968 cattle from the North and North-West could be exported on the hoof to Zambia but during the past two years this alternative outlet has been prohibited, largely in an effort to boost the throughput at Lobatse. In so far as the Botswana Meat Commission (see Chapter VI) has a statutory monopoly on the export of livestock all slaughter cattle other than for domestic consumption must pass through its abattoir and the prices offered by B.M.C. have a national significance. The prices paid by B.M.C. are fixed annually in advance and are usually followed by a variable bonus at the end of the year. Prices vary in relation to the season and the grade of the animal. Between 1965 and 1969 producer prices (including the bonus) increased by about 28% and compare favourably with comparable prices overseas. It is desirable from a national viewpoint and for the B.M.C. that the annual national offtake be as stable and predictable as possible. This aim has not yet been realised. The seasonal price differentials offered by B.M.C. and its quota system do not seem to have any significant effect in this regard. The small effect of price on offtake is attributable in part to traditional attitudes towards cattle and partly to the distribution of cattle amongst farmers. Whilst the relatively small number of large farmers (there were in 1969 only 5% of holders with more than 100 head of cattle in the non-freehold areas), respond favourably to price increases this is by no means true of the small cattle owners, who comprise the vast majority of cattle farmers. Small herds must of necessity produce a small and a widely fluctuating offtake from year to year. Additionally, for the small man the marketing

of his cattle is more difficult and there is a tendency for him to realise less per beast than the large farmer. Further, the small farmer is primarily concerned to increase the size of his herd and will tend only to sell cattle for identifiable cash needs. Thus it is possible that for many farmers rising prices may tend to have a negative rather than a positive effect in terms of calling forth increased production. It is for these reasons that Government is determined that improvements to the marketing structure be accompanied by intensified extension advice.

4.64 Whilst Botswana clearly benefits from the rising trend in world beef prices it would be unwise to rely too heavily on them. World meat production expanded much more slowly in 1968 and 1969 than in 1967 and only small increases are anticipated in 1970. This relatively slow growth in production combined with an increasing world demand creates a situation where prices may be expected to remain high. But the pattern of world trade in beef can be quickly disrupted by outbreaks of foot and mouth disease or changes in policy by the major meat importing countries such as the United Kingdom. It is therefore important for Botswana to consistently raise the quality of its product and to constantly seek new markets.

The Dairy Industry

4.65 Milk is a traditional part of the diet in Botswana and is usually taken in its sour form – madila. Efforts to develop the dairy industry have a forty year history but marketed milk is still a relatively small part of agricultural sales. Government maintains a small dairy section which concentrates on dairy extension work, the establishment of small dairies and cream collecting centres and the operation of a small milk filtering plant at Mahalapye. Cream is widely produced and exported to South Africa and South-West Africa. In 1968/69 a total of 152,198 gallons of cream were exported, equivalent to 2,130,772 gallons of milk. The retained skimmed milk is used for human consumption and casein production. These exports of cream are subject to a dairy levy of two cents per pound of butter fat; this is paid into a special fund which is used to finance the expansion of the dairy industry. Botswana however is far from self sufficient in dairy products and the produce of the small number of dairy herds in the country is supplemented by large imports of milk – in excess of 200 gallons daily. In an effort to stimulate domestic dairy production the Botswana Agricultural College and the Rural Training Centres offer courses in dairying: the former as part of the syllabus for training agricultural demonstrators, the latter to groups of farmers on short intensive courses.

4.66 As yet there is no detailed plan for the development of the dairy industry but it is intended to rectify this omission during the present Plan period. It is proposed to undertake investigations aimed at reducing Botswana's dependence on imported milk. It is also recognised that whilst Botswana will never be a true dairy country more attention to dairying will provide an additional stimulus to rural development.

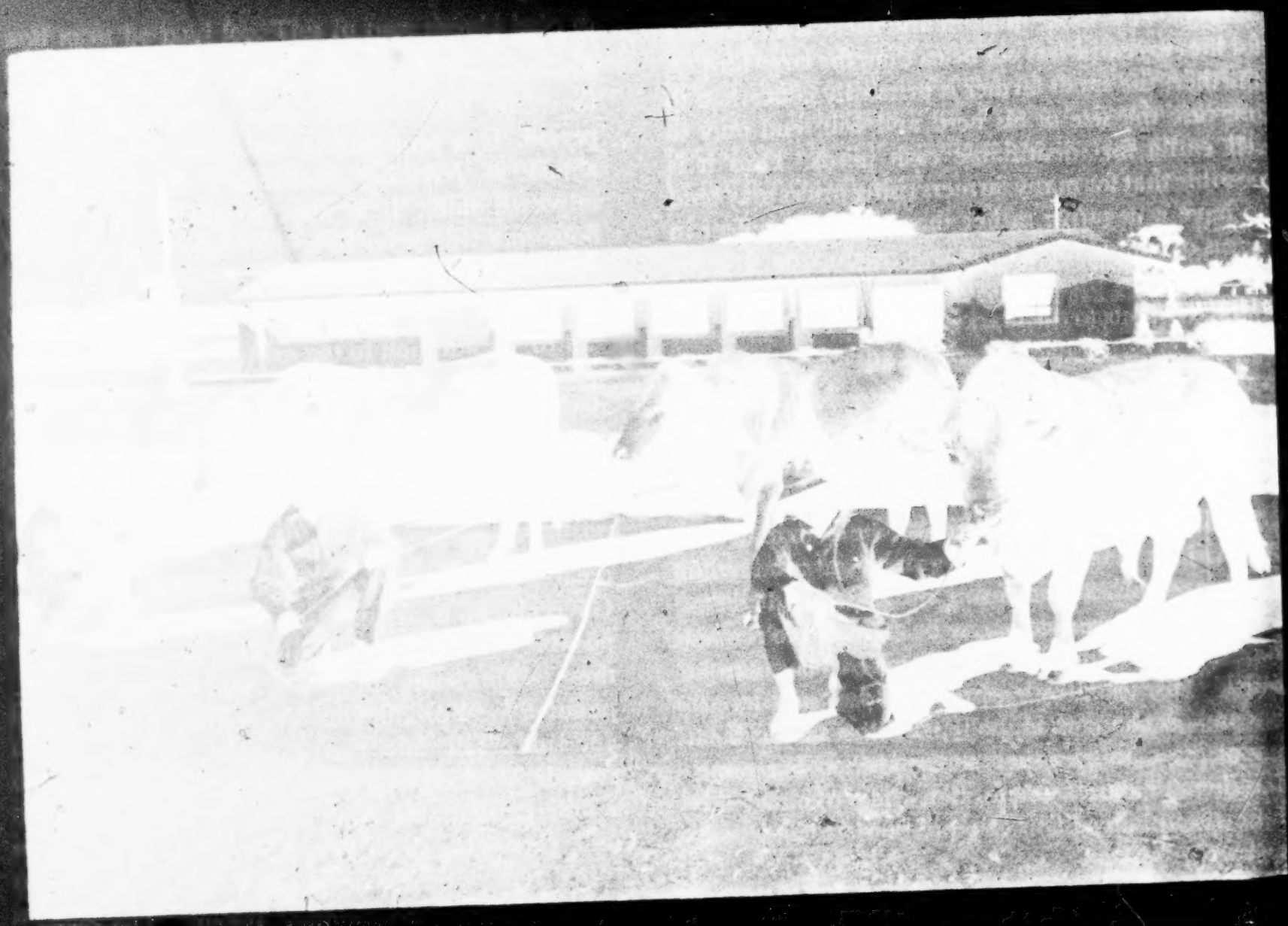
4.67 In addition to the existing markets for fluid milk, new markets will appear as a result of the development of a mining industry in the North East. The influx of people, the growth of existing towns and the creation of new ones will certainly create an additional demand for milk and milk products. In so far as the new job opportunities created by the mining developments will be limited, Government is anxious to ensure that as far as possible the year round daily food requirements of those additionally employed will be met by expanding local production. Vegetables, grains, meat and milk fall into this category. Consequently consideration is being given to the establishment of a milk pasteurizing plant in one of the traditional milk producing areas. This development must be concurrent with the development of an adequate collection and distribution system. The experience of other countries is being studied in this regard.

4.68 Thus during the Plan period it is hoped to maintain and expand the role of dairying in terms of raising the level of nutrition in the rural and urban areas. If plans for the integration of farming proceed one of the principal obstacles to increased dairy production will be diminished, namely the shortage of fodder during the long dry season. Whilst then, the potential for dairy development is limited, this Plan envisages the achievement of a much higher level of self sufficiency in dairy products than at present.

Animal Health and Disease Control

4.69 Within the Ministry of Agriculture the responsibility for the prevention and control of animal diseases, the maintenance and control of quarantine camps, cordon fences, stock routes, and meat inspection and grading rests with the Department of Animal Health. It is also responsible for controlling the import and export of livestock and livestock products.

4.70 For purposes of disease control the country is divided into four quarantine areas by cordon fences. Livestock moving from one quarantine area to another must undergo at least fourteen days quarantine in Government maintained quarantine camps which straddle the main trek routes and are contiguous with the cordon fences.



Three Bulls used in the Artificial Insemination programme at Ramatlabama.

Cattle watering pen on the trek route between Werda and Lobatse.

4.71 The greatest disease hazard in Botswana is foot and mouth disease and the occasional outbreaks, which occur most frequently in the north-west of the country can have a direct and damaging effect on the national economy. Botswana rightly has achieved international distinction in its control of this disruptive disease.

4.72 The primary purpose of the cordon system is to control this disease and in the event of an outbreak all livestock movement is prohibited until the extent of the infection has been ascertained. Thereafter movement is allowed from those zones known to be free of the disease but only after consultation with the animal health authorities of the importing countries. To gain a further measure of control over the disease annual vaccination of all cattle, sheep and goats in the north-west of Botswana was commenced in 1965. During the period 1965-70 these vaccinations were against the only types which had been recorded in Botswana namely SAT I and III. Recent investigations, however, in areas of contact between livestock and game have clearly revealed the presence of SAT II in buffalo and therefore in future vaccination campaigns a trivalent vaccine capable of providing protection against all three viruses will be used. These vaccinations will give livestock an almost complete immunity from foot and mouth disease for a period of approximately half a year following the vaccination. During the remainder of the year although their immunity will decline progressively, any outbreaks of foot and mouth which do occur will probably be in a mild form which will be easily eliminated by re-vaccination.

4.73 Prior to adopting the policy of control by vaccination, outbreaks of foot and mouth disease were eliminated by infecting all the animals in the quarantine areas with live virus so that all the stock caught the disease and then recovered. This method of control is no longer practised, as it was found that by infecting the domestic livestock population in an area where there were large concentrations of game, the disease caused heavy infection in the game which, by migrating, spread the disease.

4.74 To gain further knowledge of the disease, research work into its epidemiology and the response in animals to vaccination is being carried out in conjunction with the U.K. Animal Virus Research Institute at Pirbright. Inspections of the foot and mouth disease control measures practised in Botswana have been made by veterinary authorities from South Africa and from the United Kingdom and they have expressed considerable satisfaction with them. Indeed these measures enable Botswana to achieve a unique degree of success in Africa, and entry to the U.K. meat market is maintained.

4.75 In addition to foot and mouth there are a number of other diseases which, cumulatively cause considerable loss to the livestock industry. With many, prophylaxis is possible and the Department of Animal Health makes some thirty-five different vaccines available to stockowners. Furthermore, free but compulsory annual vaccinations are carried out against Anthrax, Quarter Evil and Rabies, whilst periodic campaigns are also carried out against botulism and contagious abortion.

4.76 In recent years the incidence of measles in cattle has been high. In 1967 the incidence of measly carcases detained at the abattoir was 14.9% of throughput whilst in 1969 this percentage was slightly lower at 10%. This reduction may be attributed partly to the national campaign against measles which was launched about eighteen months ago. This campaign has been, and continues to be, of an essentially educational nature. The aim is to eliminate measles through the erdication of tapeworm in humans by persuading the population at large to adopt better sanitary habits. However it is too early for this campaign to have had a marked effect on the incidence of measles and the decline is more likely to have been caused by better rainfall leading to a better distribution of cattle away from settled areas.

4.77 Government operates a meat inspection and hygiene service at the B.M.C. in Lobatse. These services ensure that all meat and by-products exported conform to the meticulous standards set by the importing countries and also ensure that all pathological conditions observed during livestock slaughter are reported.

4.78 A central research and diagnostic laboratory has been built in Gaborone which provides a diagnostic service for the field. A field investigational service is at present being established to carry out applied research into various diseases and conditions affecting the health of livestock. In particular this service will concentrate on Helminthiasis, protozoal and tick borne diseases and trace element deficiencies.

4.79 During the Plan period a number of additions to the disease control network are planned, the most important being further disease control fences and an additional quarantine camp (see Projects V.E.02 and A.H.05). In order to maintain the high quality of disease control in Botswana it is necessary to continue the high level of recurrent expenditure. As a prosperous livestock industry depends on considerable protective investments Government will continue to give a high priority to animal health and disease control.

4.80 The control of tsetse fly (Glossina Morsitans), which infests large areas of the Okavango

Swamp is a further area where Government has committed itself to a high level of recurrent expenditure - about R150,000 per year. The control of tsetse fly is not only of benefit to Botswana but also to neighbouring countries and it is important that it be recognised as an international problem. For many years the Government has maintained a Tsetse Fly Control Unit in the north-west which has successfully halted the spread of the fly.

4.81 Whilst in the past the control of tsetse fly was essentially a holding operation, mainly employing methods of bush clearing to prevent further encroachment of the fly into cattle farming areas, recent techniques based on the selective ground spraying with residual insecticides of identified breeding sites have been much more successful. It is now intended to progressively eradicate tsetse fly from Botswana thereby releasing or reclaiming areas for livestock and human habitation, and avoiding the necessity for continuous control measures which are prohibitively expensive in the long term. The success of the present eradication activities has given an additional impetus to the investigations required prior to the planned exploitation of the vast water resources of the Okavango.

Agricultural Research

4.82 The rate of development of the agricultural industry depends in large measure on the results of research and the successful transmission of these results to farmers through the extension service. Whilst improved methods of animal husbandry must be propagated, the distribution of cattle amongst farmers clearly shows that the majority of farmers cannot depend solely or even substantially on their cattle holdings. It therefore follows that up to 90% of farming families must improve their crop husbandry. A high level of both crop and animal husbandry will only be sustained if a policy of rational land utilisation is followed incorporating such features as soil and water conservation and improved range management practices. It is necessary therefore for agricultural research to provide the answers to a number of existing problems and also to anticipate those problems that will arise in the future as more intensive systems of agriculture become more widely accepted.

4.83 During the Plan period applied agricultural research will be concentrated on seven main areas:-

(i) The improvement of dry land farming practices
(ii) Agronomy
(iii) Animals Husbandry Practices
(iv) Range Management
(v) Farm Management Studies
(vi) Entomology and Plant Protection
(vii) Irrigation Practices.

4.84 The improvement of dryland farming practises will involve applied studies of a range of techniques. Significant among these are studies of the maintenance of soil fertility, economy of water usage, moisture conservation in the soil profile and reduced or minimum tillage practices utilising the multi-purpose tool bar. A study of strip cropping and micro catchments for higher priced crops will be started as soon as possible.

4.85 Crop agronomy has long been a major part of the agricultural research programme and has resulted in the thorough testing of many varieties of the staple grains and legumes and the issue of sound technical advice to the extension service. Future work will centre on the production of composite varieties of maize and sorghum in order to further increase yields per unit area. Investigations will also continue on a wide range of possible cash crops, including cotton, sisal, oil seeds, guar beans etc.

4.86 Animal husbandry research has long been neglected in Botswana and the next few years will see a marked upsurge in this field. A major scheme concerned with evaluating the Tswana herd (see Project A.H.03) together with a variety of field investigations designed to evaluate traditional animal management practices will be commenced. Whilst the technical aspects of management can in theory at least be resolved their implementation is often obstructed by a series of environmental and quasi-sociological constraints. It is therefore planned to examine these constraints in detail. Further, as the level of Government and private investment in the livestock industry increases it is envisaged that a number of complex technical problems will be encountered, significant among them being the methods and types of supplementary feeding. Thus in 1972 it is planned to establish a small animal husbandry research station.

4.87 Pasture investigations and range management have in the past received only limited attention, largely because of the shortage of funds and skilled personnel. Whilst the results of some long term research are now becoming available the information is not applicable to many parts of the country. Thus more widespread studies will be undertaken, along with detailed evaluations of the ecology and floristic composition of certain specific areas where major livestock developments are planned.

4.88 Farm management studies, begun three years ago, are now yielding valuable data, concerning the level of farm inputs such as capital and

labour and the timing of certain agricultural practices. This type of information is vital if extension advice is to be efficacious. A full appreciation of the economics of different farming systems and the varied economic constraints which bear upon them is a prerequisite to sound planning. In this context farm management studies will be continued and augmented by a planned programme of socio-economic studies shortly to be undertaken by the Ministry of Agriculture. Allied to this work will be an expanded programme of statistical data collection and analysis the most important part of which will be the livestock census planned to be undertaken in 1970 and processed by 1971.

4.89 A considerable amount of entomological and research work has been undertaken along with detailed plant pathology investigations. The former has been concerned with identifying pests of economic significance and devising methods for their control. Whilst plant pathology studies have been concerned with analysing the plant disease complex in Botswana, because of the low disease hazard in Botswana this work has demonstrated that seed production may become an important agricultural activity. Associated with this work has been a study of grain-storage losses through inadequate protection against pests. This research programme has already resulted in further beneficial advice being made available to the farmers.

4.90 The research programme in the field of irrigation has only recently commenced and is centred on the problem of optimum water usage under Botswana conditions. In addition growth responses to fertilizer applications under varying water conditions will receive attention. This work will largely be undertaken in conjunction with the development of a pilot irrigation scheme at Kasane on the Chobe river and the development of a number of demonstration irrigation plots by the UNDP(SF) Project, Surveys and Training for the Development of Water Resources and Agricultural Production (see Project I.D.02).

4.91 The primary and over-riding aim throughout the agricultural research programme is the need, first for research to be applied, secondly, for it to answer both current problems and anticipate future constraints and, thirdly, to supply solutions which are economically rational and as low cost as possible. The agricultural research programme in Botswana is of major importance and consequently on a relatively large scale, but it is Government's intention to ensure that its researches are always of an essentially practical nature, and that investigations whose value is largely academic are not pursued.

Agricultural Education and Training

4.92 The successful implementation of any agricultural development programme depends in large measure upon the adequacy of the entire system of agricultural education ranging from the training of high level Government personnel to the education of the most distant farming family. Agricultural education in the broad sense includes all transfer of agricultural knowledge whether by experience, observation, social contact, institutional training or extension effort, and Government recognises that education and training at any one level cannot be considered in isolation from the national need for agricultural education at all levels, nor indeed apart from the system of general education. If the problem is dealt with in piecemeal fashion, priorities will become distorted and efficiency in the use of scarce human and financial resources will be lost in confused efforts to develop an effective structure. Allied to the need for an overall national strategy for agricultural education is the need to develop an adequate agricultural manpower plan; whilst some simple preliminary work has already been done in this field, it is planned to undertake a more sophisticated study during the Plan period.

4.93 The first need is for the Ministry of Agriculture to be properly staffed with trained personnel both at the professional and sub-professional level. For the latter level policy will be directed by an increasing orientation of Government sponsored institutional training towards a "one level" system whose standard can be advanced as the job requirement grows. The need for professional university trained officers will be satisfied by utilizing on a world - wide basis the various institutions best suited to Botswana's needs.

4.94 It is anticipated that as agricultural development progresses, so will the basic field staff require to be trained at a higher level. There is a need too to develop training specialities (e.g. animal health, farm mechanisation, irrigation, animal husbandry, home economics with agriculture for women agricultural teachers, etc.). With this at the core it is held that a single well founded institution can effectively and with economy, embrace all agricultural training at the intermediate level. In a poor country like Botswana there is no room for the extravagance of setting up separate individual institutes to cater for the various fields of agricultural training at closely comparable levels. All agricultural disciplines have common basic subjects, all require laboratories, farm and demonstration facilities etc., and it is clear that if all the available resources of teaching staff, equipment and facilities are centralised it will lead to the development of an efficient, co-ordinated centre for institutional training.

4.95 Combined with the need for formal job training, which in addition to answering Government's needs for trained manpower will also in the future provide trained technicians for the private sector, there is the separate field of adult education. The approach to this problem is two-fold: first the extension service endeavours to disseminate agricultural knowledge to farmers in their own homes and on their farms; secondly, the Rural Training Centres provide short intensive courses of instruction for selected groups of farmers. As with RURAL Broadcasting, this type of group training has been found to be highly effective in propagating modern agricultural techniques and good husbandry practices. At present two such centres exist, one at Content Farm near Gaborone and the other at Mahalapye. These have provided a wealth of useful experience in the establishment and administration of adult training. It is therefore planned to expand these centres to a total of five by building during the present Plan period three more centres at Maun, Francistown and Kanye which will enable some 4,800 farmers or farmers' wives per year to be given intensive courses lasting two to three weeks in a variety of agricultural disciplines.

4.96 Agricultural education will also be given its place in the formal system of education. In secondary schools new syllabi are being developed to uplift the status of agriculture in the curriculum, whilst at the same time emphasising the practical nature of the subject.

4.97 In primary schools a new agriculture syllabus is to be increasingly adopted and all subjects related to a theme of nature conservation. This is aimed at relating the first years of formal education more closely with the realities of the world in which most of the population live and into which the majority of primary school leavers must go. For many years a clear objective of the education system must be to heighten the awareness of agriculture as a profitable way of life.

4.98 Allied to this development, and as a response to purely private initiative, a system of farmers brigades has developed. Whilst the rationale of this type of training is far from finalised, these groups of young people undergoing instruction in agriculture are beginning to have a noticeable effect, and it is Government's intention to encourage this unique venture. Government is most concerned to provide for the needs of rural youth, and it is anticipated that the steps outlined above, in conjunction with the introduction of a farmer apprenticeship scheme, will comprise the initial stages in a planned programme designed to tackle this problem.

Co-operatives and Rural Credits

4.99 The Co-operative movement in Botswana is barely six years old and is still therefore in the early stages of development. Legislation was enacted in 1962 and the first Registrar of Co-operative Societies was appointed in 1964. By mid 1969 there were 62 registered co-operative societies as follows:

Agricultural Marketing	25
Thrift and Loan	23
Consumers	11
Co-operative Union (Wholesale)	1
Others	2

The gross turnover of marketing and consumers societies was in the region of R600,000 in 1968 and is increasing steadily. This is an encouraging start to the growth of the movement and the present policy of cautious expansion and of consolidation will be pursued while at the same time a rate of growth that can be supported by the available manpower and facilities for co-operative education and training will be maintained.

4.100 The size of the Division of Co-operative Development is roughly adequate to meet its legal responsibilities of auditing and control but it is unable to provide adequate facilities for the training of persons to run societies or to train Government Co-operative officers.

4.101 At present officers and suitable societies officials are sent on courses offered in Lesotho, Tanzania, Canada and England, while internally courses are run in conjunction with the Botswana Training Centre. The great need still remains however, for more local facilities for training and to meet it there is included in this plan a project for the establishment of a Co-operative Development Centre see Project C.O.02. This project will be financed by the United Nations Development Programme Special Fund and the Swedish International Development Authority and executed by the International Labour Office in conjunction with Government.

4.102 The Co-operative Movement is seen by Government as an essential means of enabling the mass of the people to participate in the economic development of Botswana and of encouraging the transition from a predominantly subsistence economy to a cash economy. As a stimulus to agricultural production it offers the opportunity of competitive marketing and the best possible return for higher productivity resulting from the use of improved farming techniques. It provides a vehicle for the creation and re-investment of trading surpluses and the mobilisation of small savings to the benefit of the individual, the local community and

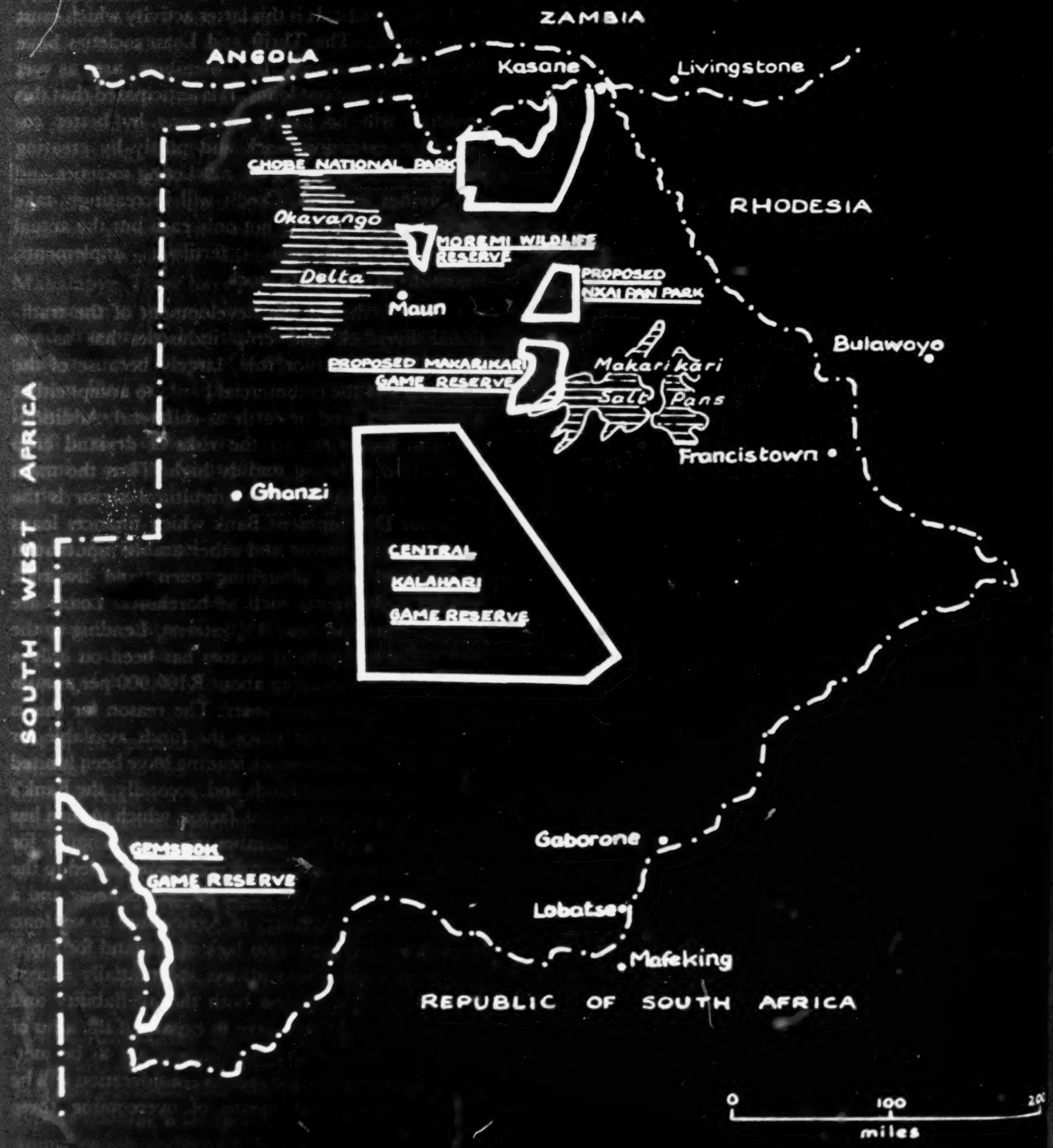
the national economy. The movement is an agent for social change and modernisation in rural areas and an excellent training ground for democratic procedures and the development of social responsibility.

4.103 The financial needs for the capital development of co-operative societies are met through the Co-operative Development Trust which was set up in 1965 as a non-government agency to administer funds raised for specific co-operative projects. The Co-operative Development Trust is a peculiar feature of the Co-operative scene in Botswana. It is not a Co-operative society but a registered charitable trust, yet it nevertheless operates as a kind of embryo co-operative bank. The funds of the trust originated with the grant of R60,000 from the British Co-operative Movement and OXFAM and has since been supplemented by grants from other sources as well as by the deposits by Thrift and Loan Societies in Botswana. The Trust funds are employed either as direct loans to primary co-operative societies, or as loans to provide fixed and working capital for the Botswana Co-operative Union. Thus the Trust has invested in the development of the movement and its loans carry a high degree of risk in so far as loans for building are subject to the vagaries of the traditional system of land tenure and those for working capital to the fluctuations of the profit and loss accounts of the various societies. Originally the Trust wholly financed the launching of co-operatives but is now concentrating on making loans only on a fifty-fifty basis with the societies own funds, thereby increasing the degree of self-sufficiency in the individual societies. Government regards the ability of the Movement to raise for itself, in whole or in part, finance for its development as being a feature of great importance in line with the principle of utilising domestic savings.

4.104 Whilst the several types of co-operative society in Botswana are all important the most significant from the agricultural viewpoint are the Agricultural Marketing and Thrift and Loan Societies.

4.105 There are 25 marketing societies with about 2,000 individual members. They market both crops and livestock but the latter is the most important and to date the most successful, the more so since they offer an important alternative method of selling compared with the traditional outlets of trader and speculator. These societies are well established and sound and what is now planned is for them to develop in two directions: firstly, into direct co-operative production and secondly into the field of credit. It is this latter activity which must be expanded. The Thrift and Loan societies have accumulated savings but members are as yet reluctant to take out loans. It is anticipated that this problem will be partly overcome by better co-operative extension work and partly by creating stronger links between the marketing societies and the savings societies. Credit will increasingly take the form of advancing not only cash but the actual means of production – fertilizer, implements, feedstuffs and perhaps stock.

4.106 Credit for the development of the traditional livestock and crop industries has as yet played a very minor role, largely because of the reluctance of the commercial banks to accept either non-freehold land or cattle as collateral. Additionally the banks regard the risks of dryland crop production as being unduly high. Thus the main source of credit for the agricultural sector is the National Development Bank which finances loans for farm implements and other arable inputs such as fertilizer and ploughing oxen, and livestock related investments such as boreholes. Loans are for 3-8 years and bear 8% interest, Lending to the two main agricultural sectors has been on only a modest scale averaging about R100,000 per annum during the past three years. The reason for this is twofold: in the first place the funds available for agricultural and livestock lending have been limited to a series of special funds and, secondly, the Bank's desire to minimize the risk factor, which in turn has sharply reduced the number of farmers eligible for loans. This emphisis on risk reduction has led to the linking of loans to the Pupil Farmer Scheme and a reliance on the Ministry of Agriculture to vet loan applications. There is no lack of demand for funds and loan applications always substantially exceed approvals. Nevertheless both the availability and amount of credit will have to expand if the aims of increasing agricultural production are to be met. During the Plan period serious consideration will be given to ways and means of overcoming these problems.


ZAMBIA
ANGOLA
Kasane
Livingstone
CHOBE NATIONAL PARK
RHODESIA
Okavango
MOREMI WILDLIFE RESERVE
Delta
PROPOSED NXAI PAN PARK
Maun
Bulawoyo
PROPOSED MAKARIKARI GAME RESERVE
Makarikari Salt Pans
Francistown
Ghanzi
CENTRAL KALAHARI GAME RESERVE
SOUTH WEST AFRICA
GEMSBOK GAME RESERVE
Gaborone
Lobatse
Mafeking
REPUBLIC OF SOUTH AFRICA
0
100
miles

Chapter V – Game, Fisheries and Forestry

Wildlife

5.1 Botswana contains within its boundaries a great variety of game, often concentrated in large numbers in country which ranges from swamp through woodland and savannah to desert. This is an important asset but its preservation is costly. There are direct costs in the form of game wardens, transport and associated expenditure, and indirect costs arising from the need to segregate disease-carrying, free-ranging game from domestic livestock.

5.2 To some extent game and cattle compete for grazing. Although it is true that game can survive where cattle cannot, there are instances where the presence of free-ranging game animals makes an expansion of the grazing areas available for cattle more difficult. On the positive side, game are important to the economy in three main ways:

a as an attraction to tourists;

b as an attraction to organised hunting expeditions;

c as a source of food, skins and hides.

5.3 There is thus conflict between the conservation of game and the development of the livestock industry. At present it is not possible to resolve this problem, since the necessary technical information is not available. It is not known to what extent the game are disease-carriers. It is not known how readily game are able to adapt to the presence of disease control fences, not is it known how these fences have upset the ecological balance of the country. It is evident that the game cause damage to the disease control fences and, at the same time, the movement and number of animals are being limited by the presence of the fences. The Government intends to carry out new research to obtain scientific evidence upon which a sound policy must be based.

5.4 The viewing of game in its natural habitat is becoming increasingly attractive. The number of places in the world where this may be done is rapidly becoming fewer. Botswana is well placed in this respect to attract tourists. In particular, the Chobe National Park is in a good position to attract those visiting the Victoria Falls. In 1969, some 76,000 tourists are expected to have visited Victoria Falls. It is estimated that in 1972 tourist expenditure in Botswana will be in the region of R1.1 million.

5.5 The Safari Industry started in 1961 is now firmly established with the hunting safari companies catering annually for about 200 clients and having a turnover of nearly R800,000. Game licences and hunting fees are yielding a further R218,000 annually. Photographic safari companies are establishing themselves and expanding and will soon be able to offer tours to all centres of tourist interest.

5.6 In addition to these benefits, it is important to remember that game provides a source of food for a part of the population, which is particularly valuable in time of drought. It has been estimated by F.A.O. that the use of game meat permits the export of R1.8 million worth of beef. An F.A.O. report published in 1969 indicates that at least 9,000 tons of game meat are eaten annually. If a modest value of 10 cents a pound is placed on this meat (the cheapest butcher's meat available costs 20 cents a pound) the value of the meat is R1.8 million per annum.

5.7 Mention must also be made of the growing importance of game industries; hides and skins have long provided a small source of income to rural families. It is currently estimated that village hunters earn not less than R200,000 from this source. The systematic organisation of the processing of hides and skins to create a modern industry is now being undertaken, thereby greatly increasing its economic significance. Export duties on game hides and skins and trophies now amount to some R30,000 per annum. The value of the trophies handled by the 60 trophy dealers in Botswana exceeds R300,000 per annum.

5.8 Wildlife is a sensitive natural resource, the administration and management of which becomes ever more difficult as development spreads throughout the country. Formerly wildlife populations were protected naturally by the inaccessible nature of much of the country and by restrictions imposed on pastoral human settlements by the availability of surface water and the presence of tsetse fly. Modern innovations have enabled the human population to double every twenty years and to spread its activities, upsetting the balance that had evolved between traditional cultures, wildlife and essential wildlife habitats.

5.9 Recognising the importance of wildlife, the Botswana Government has set aside almost 30,000 square miles as conservation areas including the 4,300 square mile Chobe National Park. The latter was elevated to National Park status early in 1968 by new legislation; it is believed to provide a wider spectrum of large mammals than any sanctuary in the world. It contains woodland, savannah, an attractive ancient lake bed and the swamp and floodplain grassland along the Chobe river. Other reserves include vast pans, and areas of desert and swamp. Plans are in hand to have National Parks protecting adequate samples of all important

Gemsbok in the Kalahari.

A peaceful herd of elephant in the Chobe National Park.

biological associations as well as areas of natural beauty or of historical significance. These sanctuaries are to serve a dual role as tourist attraction, for both the people of Botswana and international visitors, and as reservoirs of wildlife – for controlled utilisation (See Project GA02) – Map 5–1 shows the proposed expansion of the Parks systems.

5.10 Special mention should be made of the Moremi Wildlife Reserve and the Gemsbok National Park. The Moremi Reserve, established on the initiative of the Batawana tribe, is situated on the edge of the Okavango Swamp. It has the most spectacular concentration of game in Botswana in the winter months. The Gemsbok Park lies in the south-western portion of Botswana and forms part of a large unit, stretching into South Africa. It contains large numbers of desert game, particularly gemsbok and springbok.

5.11 It is considered that further research leading to proper management is essential for the efficient administration of wildlife, both inside and outside the National Parks. In order to maintain healthy populations, to provide the animals with their essential needs and to lrovide the basic data for their more efficient utilisation on a long-term basis, a better scientific knowledge of wildlife is required. Surveys within the capabilities of the Department of Wildlife and National Parks will be continued in as many areas as possible; it is planned to examine the introduction of extensive commercial wildlife utilisation on a sustained basis within the framework of local culture in the Kalahari sandveld including sectors of the Central Kalahari Game Reserve. The project will determine on a scientific basis the maximum permissable exploitation of species native to the very delicate habits without endangering the essential conservation values upon which the economy of the area is inevitably dependent. The object is to investigate the permissible off-take of wild populations, to find ways in which these may be raised by conservation techniques and to devise methods of harvesting, processing and marketing.

5.12 For all the reasons given above the Government is concerned to preserve its great heritage of wildlife. It is recognised that it is essential to service this valuable renewable resource properly. The Department of Wildlife and National Parks will continue to be expanded to meet the increasing obligations for better administration, management and control of the whole wildlife industry. Botswana is determined to make available adequate resources for this task. To achieve optimum development funds will be sought from both governmental and private bodies throughout the world interested in the preservation of game. A Southern African Wildlife Foundation, a branch of the World Wildlife Fund (International), has recently been formed. It is intended that funds from this Foundation will be channelled to Wildlife conservation in all countries in Southern Africa, including Botswana. A grant of R19,026 has already been received for Park Development from this Foundation.

5.13 It is proposed to initiate in 1970 an education and training scheme which will direct conservation education towards the public and offer appropriate training for game scouts dealing with tourists and the public. It is hoped that this project will be financed by the African Wildlife Leadership Foundation of Washington, D.C.

5.14 Recurrent and capital expenditure on wildlife conservation and development of National Parks is now approximately R185,000 p.a; it will be necessary to maintain this rate of expenditure, and to gradually increase it during the Plan period. It is projected that the recurrent expenditure will reach R190,000 in 1974/75, representing a 13.5% increase per annum. Direct revenue, from hunting fees, park entrance fees, and the game trophy trade was in the region of R260,000 in 1969/70. It will be possible to maintain and possibly increase this level of direct revenue. It is, therefore, evident that wildlife in Botswana can be more than self-supporting without taking into account the secondary benefits from tourism (see the section on Tourism in Chapter VI).

5.15 In 1965 the staff of the department was extremely small and consisted of 5 senior officers and 38 other officers. This was totally inadequate and meant that the department only had a nominal representation over about a quarter of the country. The staff numbers have been gradually increased so that by 1970/71 there will be 14 game officers at Assistant Warden level and above with 96 supporting staff covering most of the important game areas.

5.16 It will be necessary, however, to expand the staff still further over the next five years, particularly with regard to the National Parks and Reserves. As these areas are developed for tourism and the tourist pressure increases more staff will be required for purposes of supervision and guiding of tourists, as well as for scientific investigations.

5.17 In 1970/71 a Park Warden and staff are required to handle the southern part of the Chobe National Park and a warden plus scouts are required for the Eastern Bamangwato and Tuli Block areas. It is hoped to recruit a biologist who is a citizen of Botswana during this year. He will work alongside the U.N.D.P. biologist. During 1971/72 a new Park Warden with supporting staff will be required to develop and run the proposed Nxai Pan Park and Makarikari Game Reserve. A Game Warden with

Casting the nets at Lake Ngami.

Preparing the catch for sun drying.

Game Scouts is also required for South Eastern Botswana. During the remaining period up to 1975/76 a further Park Warden with supporting staff for Southern Botswana and a further biologist to expand the scientific section will be required.

Fisheries

5.18 Most of Botswana is arid but there is a large area of surface water in the North-West known as the Okavango Swamps. These swamps are formed by the Okavango River which splits into a number of tributaries after it enters Botswana from Angola and forms an inland delta of approximately 6,800 square miles of which about 2,000 square miles are permanently flooded. A survey of the fisheries potential of this area and also the Chobe and Lake Ngami regions was carried out with the aid of a grant from OXFAM in 1963/64 and resulted in the following estimates of total annual offtake:–

1. *The Okavango Region*

   (which includes the Okavango River and the upper Swamps).

   1.28 million lbs per year

2. *The Maun Region*

   (which includes the Thamalakane and Boteti Rivers and the Lower Swamps)

   1.28 million lbs per year

3. *The Chobe Region*

   (which includes the Chobe River and Lake Liambezi)

   1.9 million lbs. per year

4. *Lake Ngami*

   If the water level of this non-permanent lake were stabilized it could contain 25 million lbs of fish which could yield about 1.3 million lbs per annum, or if fished intermittently to near exhaustion about 10 million lbs per annum.

Thus if the fisheries potential of Botswana were fully exploited annual catches of at least 6.76 million lbs would be possible.

5.19 A further grant from OXFAM in 1966 enabled a Fisheries Extension Unit to be established under the supervision of a Fisheries Officer. The unit is based at Maun on the South East side of the delta and has been faced with three principal problems: firstly, there is no tradition of catching fish in Botswana except on an intermittent subsistence basis and therefore instruction in simple fishing techniques has been necessary; secondly, there is no strong national tradition of eating fish and, thirdly, great distances separate the most productive areas from the urban markets in the East.

5.20 The unit in addition to endeavouring to overcome these problems has begun to train a corps of officers who will ultimately provide the basis of a properly staffed fisheries section.

5.21 The project to date has been conspicuously successful, having established some sixteen fisheries stations along the Boteti River and the Western and Southern fringes of the swamps. At each station where all types of fishing equipment are sold a Fisheries Assistant is responsible for encouraging and teaching people how to fish as a means of earning a cash income. At several stations where production now exceeds the local demand drying and buying units have been established. These units teach fishermen how to dry fish under simple but hygienic conditions. The dried fish is then collected and ultimately marketed in Eastern Botswana mainly in Francistown. Dried fish is rich in both protein and oil.

5.22 In addition to work designed to promote fish production a major effort has been made via home economics instruction to encourage the consumption of fish. It is confidently expected that the demand for fish both fresh and dried in the East will expand rapidly as the urban environment grows.

5.23 At present however total production of fish from the main producing areas is estimated at about 200 short tons per annum (400,000 lbs) with a value of about R20,000. This is far short of the known potential. Nevertheless a sharp upturn in production is anticipated if present plans for commercial exploitation materialize. Two opportunities for commercial production are undergoing scrutiny at present. The first being the export of frozen fish to markets in South Africa and the second being the establishment of a fish processing and canning plant in the Maun area.

5.24 The development of fishing as a major agricultural activity will undoubtedly bring with it difficult problems of control and protection and in consequence consideration is being given to the drafting of appropriate legislation.

5.25 The drier eastern regions of Botswana offer scope for fishing only in terms of the artificial waters that have been established there. In consequence it is planned to establish a mobile fishing unit to stock these dams and offer a similar service to that of the Maun based unit – see project AE02.

5.26 As the interest in fishing grows the selling of simple fishing tackle by Government will prove to be inadequate. Consequently loans for more sophisticated equipment and small boats and engines will be available from the National Development Bank. To date two such loans have been approved and many more applications are anticipated. It is confidently expected that during the present Plan period fishing will begin to lose its

purely subsistence character and assume features which will place it firmly in an expanding cash economy.

Forestry

5.27 Although the forest resources of Botswana are not extensive, the Government recognizes that there are nevertheless persuasive arguments for conservation measures to be taken to preserve and augment those forest assets which do exist. A Forest Act was enacted in 1968 which provides for the creation of the forest reserves and for the protection of the forest estate. Under this legislation, regulations may be made to control the exploitation of timber within a reserve or in natural woodland.

5.28 The main natural forest resources of the country are to be found in the Chobe District in the North of Botswana. An assessment of these resources was made in 1935-38 and resulted in a timber concession operating during the period 1945-55. A further assessment of the forestry potential of the Northern areas was conducted between 1963 and 1966. As a result a timber concession to cover the exploitation of some 7,500,000 cubic feet per annum is being offered. If the concession is taken up then a timber industry providing substantial employment could be maintained.

5.29 During the last two years a short survey has been made on the demarcation of forest reserves capable of sustained production in the Northern area, whilst in the South and East of the country a number of forest reserves for conservation and protection purposes have been established. These are mainly in areas where such reserves are necessary in order to prevent desert encroachment. The assessment of other timber resources has been commenced particularly in the areas where new townships are planned.

5.30 Suitable poles for house building are generally in short supply, whilst wood fuel is becoming increasingly scarce near most of the larger centres of population. In order to overcome this problem a programme of establishing, on suitable sites, a number of small plantations has been instituted. Planting will proceed throughout the present Plan period at the rate of about 100 acres per annum. Re-afforestation however under conditions of low rainfall, high seasonal temperatures and occasional frosts is both expensive and difficult and must therefore be limited.

5.31 At present, almost all fence posts used in agricultural and veterinary development are imported. These are either metal posts or treated wooden poles. A major portion of these requirements could be met from poles grown in Botswana at competitive prices. Recently a commercial creosote plant has been established in Francistown which will treat both local and imported poles and building timber.

5.32 The possibilities of growing timber on a commercial scale in Southern Botswana are limited owing to the adverse climatic conditions. In the North however where the rainfall is much higher trial plots have been established on a variety of soils ranging from Kalahari sands to alluvial deposits. Should these trials be successful the way will be opened for the establishment of considerable plantations growing timber suitable for fencing posts, mining timber and lumber.

5.33 It is therefore Government's intention to carry out basic tests and trials in order to prove the natural potential for forestry, and to encourage the exploitation of forest assets by private enterprise. At the same time Government will seek to safeguard wherever necessary those forestry assets which form part of Botswana's heritage.

Chapter VI – Industry, Commerce and Tourism

Established Industries

6.1 Botswana is at an early stage of industrial development. In the past the lack of known resources, poorly developed infrastructure and low income levels have combined to impede investment in industry. Industrial enterprises have been few and, with the exception of the large abattoir and meat cannery at Lobatse, small. However, the recent discoveries of substantial mineral resources described in Chapter VII, to be opened for exploitation during the Plan period, now provide immediate and substantial investment opportunities for secondary industry.

6.2 The most recent statistics indicated that the value added to national income by the manufacturing sector amounted to R3.6 million in 1968, whilst the construction industry contributed R2 million. 1550 persons were employed in manufacturing and 1566 in construction work. Most industries are at present located in the three modern townships of Lobatse, Gaborone and Francistown. In Gaborone the main industries so far established are wooden and steel furniture manufacture, goat and game skin processing, brewing, paint manufacture and liquid distillation. At Lobatse, in addition to the Botswana Meat Commission, there are a maize and malt mill, a clothing concern, a cap and helmet factory and a metal engineering firm. In Francistown there are a bonemeal factory, a garment manufacturer, and a thriving game trophy and curio industry.

6.3 Under the Industrial Licensing Act (1968) all manufacturing establishments, either employing over nine workers or using 25 HP or more, must be licensed. Thus in January, 1970, there were 16 enterprises so licensed, employing approximately 500 workers. There are in addition to the service industries, construction firms, bakeries, quarries, mines, mills and the Botswana Meat Commission which are all excluded from the Act.

The Potential for Industrial Development

6.4 Botswana's manufacturers have duty free access to South Africa, the largest market in Africa. Because of her geographical position (lying between South Africa and the countries to the north and astride the only north-south rail link) because of her favourable tax arrangements and her encouragement of private enterprise, and because of her unrestricted labour policies, Botswana is ideally suited for the location of light industry, especially if it is labour intensive.

6.5 Existing manufacturing enterprises fall into three categories, categories which to some extent overlap. Firstly, there are the import-substitution industries based on domestic demands; secondly, industries processing a domestically available raw material; and thirdly, export-orientated industries dependent on foreign markets.

6.6 Botswana herself provides a substantial market for a few specific consumer goods. Trade statistics show imports of more than R1,000,000 in each of the following categories:

processed foods;
soft drinks and beer;
clothing and textiles;
building materials and fabrications.

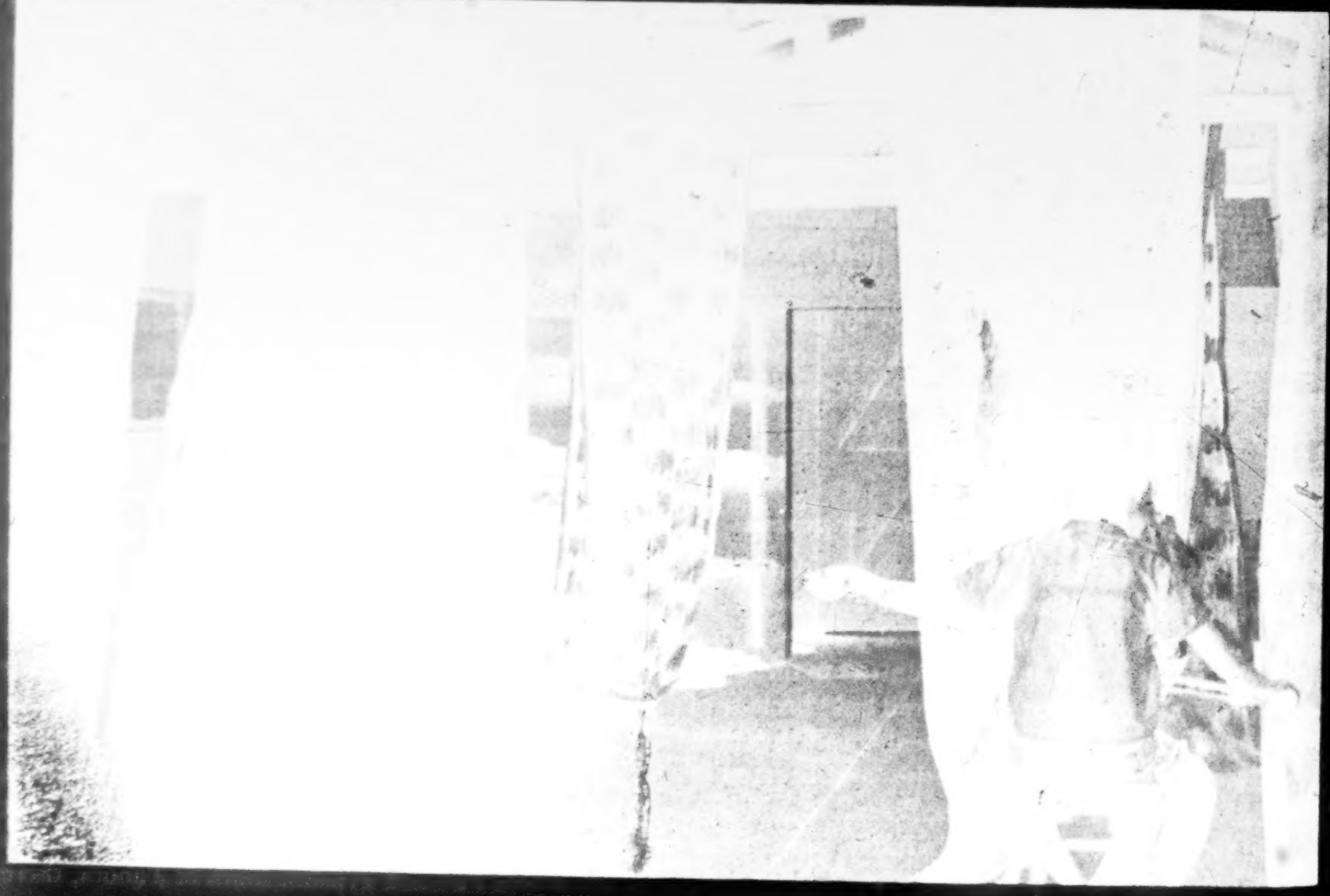
It is considered that the domestic market for the items included on the above list all offer realistic opportunities for import substitution. Furthermore, it may be seen from the trade statistics that there are many individual products imported in significant amounts which, when coupled with duty-free access to a larger market, provide attractive opportunities for local or foreign investors. These include candles, pharmaceuticals, simple chemical and toilet products, such as soap, plastic goods, and clothing.

6.7 There are also many opportunities deriving from the present raw materials of Botswana. The most obvious is the manufacture of leather and related products, including boots and shoes. A second obvious area for industrial expansion based on local produce is the game skins, trophies and curios business. There are two firms engaged in this field already and it appears that others could profitably invest here. There are a number of good longer term possibilities, including the production of ceramics from local clays, and the processing of fish and the manufacture of fish meal from the Okavango area. Finally, with the advent of the mining industries in Botswana (see Chapter VII) it is considered that many link industries can now be successfully established. Firstly, during the construction stage and thereafter, there will be a significant demand for paint, furniture, nails, concrete products and other inputs for the building industry. Secondly, once established the mines will provide a steady demand for many goods capable of being produced locally such as protective clothing and foundry and sheet metal work. The increase in domestic consumer demand will also stimulate secondary industrial development. Once mining has developed to the stage where sulphur is being produced at Selebi-Pikwe, salt, potash and soda ash at Sua Pan and gypsum south of Tonota, there is likely to be the basis for some chemical processing.

LOCAL HANDICRAFTS

Pottery – Lekgaba Centre

Basketweaving – Ngamiland



Textile Printing – Serowe Textile Workshop

6.8 The third area of industrial opportunity is found in the field of export-orientated industries. Already a number of firms are supplying markets in both Zambia and South Africa from Gaborone, Francistown and Lobatse. At the moment these firms manufacture garments, headgear and similar products with a high labour content. Clothes, hats and liquor are specific examples of what has been established on the basis of external markets. Numerous opportunities exist for the relocation of enterprises moving out of congested industrial areas in South Africa and seeking a good site with real labour and market advantages, free of cumbersome bureaucratic restrictions. Substantial investment, for example, could be safely accommodated in the garment manufacturing sector for export back to South Africa. Similar opportunities exist in other industries where the labour input is high and the economies of scale not substantial. Such foot-loose ventures will be encouraged provided at the same time steps are taken to establish enterprises which make a fundamental impact on industrial structure and help to form a nucleus for secondary development. Botswana intends to move forward in the industrial sector primarily via export orientated industries. Other countries have proved that a high level of exports can be generated by countries with small populations, given the right circumstances. Circumstances are right in Botswana.

6.9 Handicraft and cottage industries are still in an early stage of development in Botswana. Craftsmen may be found with little or no formal training producing wood carvings, furniture, toys, curios, game skin mats and karosses, woven rugs, reed mats, baskets, straw hats, pottery, bead work, metal work and leather work. A small start has been made to develop these handicraft industries at Serowe by the Serowe Youth Development Association, at Francistown and Lobatse by the Community Development Department and at Mochudi by the Kgatleng Development Association. During the Plan period those efforts will be intensified. There is no doubt that, properly planned, the production of high quality handicrafts could provide considerable income for the rural sector, as well as introduce many people to the techniques of modern business.

6.10 Two of the most pressing problems for the individual handicrafts enterprises are:

(i) The shortage of working capital;

(ii) The lack of centralised marketing arrangements.

To rectify this situation, the handicraft producers, in consultation with Government, have taken the decision to establish a central marketing agency, to be called Botswanacraft, which will market handicraft products to South Africa and overseas. Expert advice will be sought on managing the agency, and on packaging and marketing in general, through technical assistance and possibly from the Botswana Development Corporation; finance for fixed and working capital will also be required. Preliminary market research indicates that the demand for Botswana's handicrafts in the developed countries is virtually unlimited. The growth of tourism will also provide a substantial boost to the domestic market; it is estimated that tourists will be spending some R40,000 on craft products by 1975. The main markets will, however, be abroad. The main need is to put the supply situation on a sound footing so that orders can be met on time. A trust, composed of eminent and experienced members of the community, has already been established to advise and supervise the operations of Botswanacraft. Quality control will be exercised by the marketing agency by keeping craft enterprises in touch with demand and through its buying operations.

A Policy for Industrial Development

6.11 Since Independence, the Botswana Government has striven to promote industrial development. The Government recognises that it is essential to attract foreign capital investment to Botswana, and that this must be achieved by the provision of essential infrastructure, by the creation of new credit facilities, and by the encouragement of private investors through legislation designed to provide full security against expropriation, fiscal incentives and orderly development. The success of these policies is now being seen. A high level of interest is being shown by new investors which indicates that there will be a marked increase in the number of manufacturing establishments during the Plan period.

6.12 The lack of industrial development during the colonial period may be mainly attributed to the following factors:

(i) adequate basic physical infrstructure, including industrial estates, was not created;

(ii) the existence of a Southern African Customs Union permitted the free flow of manufactured goods from South Africa into Botswana, thereby ruling out normal infant industry protection policies to encourage manufacturers geared to supply the local market and at the same time there were no direct incentives for investment;

(iii) potential investors had very little knowledge of Botswana; it was erroneously believed that the country was a desert with few resources; the market potential

was thought of in terms of its own small population and low level of income;

(iv) special institutions were not established to promote development through the provision of credit and technical and managerial advice;

(v) trained manpower was not available because educational and technical training facilities were poorly developed.

6.13 All these obstacles are being rapidly overcome. Moreover, there are certain aspects of the Southern African investment scene which make Botswana particularly attractive. Through her membership in the new Southern African Customs Union Botswana has free access to the richest single market in Africa. In addition, because of Botswana's friendly relations with countries north of the Zambesi, manufacturers in Botswana can sell their products without suffering discrimination in East, Central, and West Africa. Coupled with these factors is Botswana's record political stability and Government's clearly stated commitment to private enterprise. Tax rates are relatively low, fiscal incentives for new investment generous, and there are double taxation arrangements in force with both South Africa and the United Kingdom.

6.14 Industry can only develop if adequate physical infrastructure facilities are provided. Properly laid out industrial areas have been developed in Francistown and Gaborone, with rail and road access, where adequate power and water supplies are available. An industrial estate will be created during the Plan period to accommodate firms unable to provide industrial buildings from their own resources. Industrial development at Lobatse is restricted by the scarcity of water. It is therefore desirable that only the enterprises associated with the meat industry should have priority there.

6.15 The Government is fully aware of the difficulty and high costs of establishing a pioneer industry and realises the need in some cases for protection. Accordingly under the terms of the Industrial Development Act, pioneer industries may apply to the Government for protection against any new business producing similar products in Botswana. In addition, the Government has successfully re-negotiated the Customs Union with South Africa which now makes provision for the protection of infant industries where warranted. It is now possible for the Government to impose "additional duties" on all imports of a specific good equally from whatever source. Furthermore, where a specified Botswana industry is capable of supplying a substantial part of the Southern African market, Botswana has the right to request a protective tariff for the whole market.

6.16 Whilst it feels that such fears are unwarranted, the Government is aware of the continuing desire of foreign investors to have additional guarantees against expropriation, nationalisation and political upheavals. To this end Investment Guarantee Agreements are being sought with foreign governments. One such agreement with the United States of America is already in effect and it is the Government's intention to enter into similar agreements with as many countries as possible. On a multilateral level, Botswana is a signatory to the International Convention for Settlement of Investment Disputes (ICSID).

6.17 Implicit in the plans and policies of the Government is a belief in the capacity of this country to absorb capital investment effectively, and to provide a basis for further possible reinvestment in the case of firms already established. To this end the tax policy is aimed at encouraging foreign investors to establish themselves in Botswana. The present company tax rate of 30% is more favourable than rates generally prevailing in neighbouring countries and to this must be added very liberal allowances for new capital investment. Botswana's membership of the Rand currency area is also a great advantage; the Rand is recognised internationally as a stable, hard currency subject to a low level of inflationery erosion. Repatriation of profits is not subject to any restrictions and the phased recovery of capital investment is freely permitted.

6.18 Whilst Botswana must rely on outside capital for the financing of industrial development this need not necessarily be provided through direct investment. Many of the entrepreneurs interested in Botswana, both local and foreign, lack sufficient capital. There is therefore a need for effective financial institutions capable of raising foreign capital from both governmental and private sources, to be used to provide private enterprise with credit. Provision is made in the Plan for a steadily increasing supply of commercial and industrial credit to be injected into the economy by the National Development Bank and Botswana Development Corporation.

6.19 The Government recognises the need to provide an extension service to assist new entrepreneurs. Thus it is proposed to create a small unit, to be located either in the Ministry of Commerce, Industry and Water Affairs or in the Botswana Development Corporation, capable of providing technical, engineering and management advice. This team should also include a small-scale industry expert. It is also intended to establish an investment centre where potential investors may readily obtain

detailed information of investment opportunities and other relevant data.

6.20 The final impediment to industrial development noted above is the lack of trained manpower to meet the needs of industrial and commercial investors. Besides the crash expansion of secondary and higher education to fill this gap, it is the Government's intention to greatly expand vocational training. While the Government will insist on the employment of citizens of Botswana, wherever fully qualified candidates are available, it is also realised that the people must have sufficient skills before they can expect to be employed at higher levels. During the first two years of the Plan period, the Government will establish a new Vocational Training Centre in Francistown, primarily concerned with importing technical and artisan skills. Private enterprise is expected to co-operate actively in the training of local personnel and to draw up in the case of each enterprise a programme of phased localisation related to training. A new Division of Vocational Training has been created in the Ministry of Education to assist in the fulfillment of this policy (see Chapter IX).

6.21 All queries in respect of the above should be addressed in the first instance to the Permanent Secretary, Ministry of Commerce, Industry and Water Affairs, Private Bag 4, Gaborone.

Botswana Development Corporation Ltd.

6.22 The slowness of industrial development to date must be partly attributed to the lack of entrepreneurial initiative. For this reason the Government has established a Botswana Development Corporation (BDC), the function of which will be to identify business opportunities in industry, commerce and agriculture; undertake the related detailed feasibility studies and interest potential investors in specific projects. The B.D.C. will participate in the equity of promising new ventures in partnership, where appropriate, with foreign capital; it will manage Government's investments in industry and commerce, promote indigenous industrial and commercial entrepreneurs, and issue commercial loans to private enterprise.

6.23 It is planned that the BDC will be fully operational as a Government owned limited liability company before mid 1970. To this end the General-Manager has already been appointed and provision made to meet establishment and running costs from U.K. development funds. The staff will be built up during the Plan period to include two Senior Project Officers, three Assistant Project Officers, a Company Secretary/Accountant and the necessary supporting staff.

6.24 The Botswana Development Corporation will be concerned immediately with the importation of sugar, with hotels for the tourist industry and with the construction of a several storey office block in Gaborone. Consideration will be given at an early stage to participation in the construction industry and in ranching, irrigation and fishing ventures. Government may invite the BDC to create and manage industrial estates, firstly in Francistown and later in Gaborone.

Botswana Meat Commission

6.25 The Botswana Meat Commission (BMC) is a statutory corporation formed in early 1966 from Bechuanaland Protectorate Abattoirs Limited (B.P.A.L.) and its subsidiary company, Export and Canning Company (E.C.C.O.): The equity of B.P.A.L.'s major share holder, the Commonwealth Development Corporation was converted into a ten year loan. With a capital investment at the end of 1969 of about R4.75 million Botswana Meat Commission is by far the largest beef processing enterprise in Africa. It is also one of the most modern.

6.26 During 1966, 132,232 cattle were slaughtered by Botswana Meat Commission. This number decline to 88,535 in 1967 because, with good rains after five years of drought, the grazing recovered sufficiently to enable stock owners to start rebuilding their herds. Throughout in 1969 stood at 93,074 but the average weight per carcass was 20% higher than in 1966. The estimated throughout for 1970 is 130,000, which is partly explained by the drought conditions. The abattoir following a modernization programme carried out between 1964 and 1968 has the capacity to process up to 1,500 head daily, which is sufficient to enable it to handle a maximum annual throughput of about 200,000. However, since there is little prospect of an entirely constant throughput the effective maximum capacity is below this figure. Furthermore the heavier the carcasses the lower the number of beasts which may be processed in any one period.

6.27 The BMC employs between 700 and 1,000 workers depending on production levels and at present contributes over one third of Government's income tax revenues. The BMC income tax liability is calculated on turnover in accordance with a specially devised formula. A cattle export levy is also charged at the rate of R2.50 per head with 20c being retained in a special fund employed for the development of the cattle industry. It is to be noted that the revenue derived by Government from the BMC is however, insufficient to meet Government expenditure directly related to the cattle industry, such as that on disease control and animal husbandry extension.

6.28 Throughput is at present below capacity and varies seasonably in relation to changing

Botswana Meat Commission at Lobatse

grazing conditions. In an attempt to encourage a more even delivery of cattle to the abattoir a differential price structure has been introduced. This has not as yet had any material effect. Because annual throughput is approximately 50% of capacity, over-head costs are high and there is scope for significant economies of scale which would result in increased prices to the producer. Such increases are however subject to the export market for beef remaining buoyant and a continuence of the Botswana Meat Commission's ability to sell in the best markets.

6.29 The main export from the abattoir is chilled carcasses but (blast frozen) boneless beef is also a major product. The main markets served are the United Kingdom, South Africa and Zambia. Efforts are being made to open up new markets including Swaziland, Switzerland, Hong Kong, Ghana and other European countries. The Botswana Meat Commission also has extensive canning facilities. Under an agreement with Brooke Bond Liebing Ltd., the largest distributor of corned beef in the United Kingdom, Liebig's are able to purchase all of the Botswana Meat Commission's export production of canned corned beef which is marketed under the trade name of Fray Bentos. During the past two years, however, the corned beef market has been economically unattractive and little has been produced. The canning plant is however constantly maintained and may be brought into operation at very short notice.

6.30 As explained in Chapter 4 the internal marketing of beef in Botswana is conducted within a relatively simple structure but the geographical position of the Botswana Meat Commission enforces long treks and rail journeys during the course of which cattle tend to lose condition with a resultant reduction in the prices paid to producers. Recent studies, as yet incomplete, of the beef marketing situation in Botswana suggest that consideration might be given to establishing a killing plant, sited somewhere in the north of the country, possibly near Maun; chilled carcasses could be exported direct by road via Kazungula to Zambia. During the first year of the Plan detailed economic and feasibility studies of this project will be made taking fully into account the effect such a plant would have on the Lobatse abattoir. A second related question requiring careful economic evaluation is the costs of running and developing trek routes. This, too, will be investigated in depth as soon as possible.

6.31 The long term prospects for beef exports are good. The growth of World meat consumption has reflected and paralleled rising world incomes. Per capital meat consumption has risen 1.1% p.a.; beef is the preferred meat, accounting for 45% of total meat consumption. The volume of world trade in beef, accounting for only 6% of production over the past decade, has expanded at 6% p.a. The value of these exports has risen by 1% p.a. Indications are that world prices are likely to continue to rise moderately over the Plan period, and the demand for beef will remain firm. As far as Botswana's neighbouring markets are concerned there is every indication that the demand for its beef in South Africa will remain bouyant, and that the demand for beef imports will rise both in Zambia and in other markets of importance.

Commerce

6.32 The number of Trading Act Licenses issued during 1969 in respect of fixed places of business was 1095, representing a 23% rise over the preceeding year, the largest number of these being issued to general dealers. With the increased pace of development projected for the plan period, it is anticipated that there will be a corresponding rapid expansion of commerce, and of service industries such as drycleaning, garages etc., The development of the Gaborone Mall will be completed; a business area will be established at Selebi-Pikwe and a new commercial centre will be created in Francistown which will serve the whole north-eastern mining complex. The vast majority of goods sold in Botswana have to be imported, and this, coupled with transportation difficulties, particularly in the remoter areas, and the fact that most traders operate on a small scale often results in relatively high prices. To establish fairer prices, Government intends to encourage competition in the trading sector wherever possible; at the same time prices which appear to be higher than justified will be reviewed and, if necessary/price control will be introduced to check arbitrary price increases, particularly where basic commodities are concerned.

6.33 In the absence of a Weights and Measures Division, the difficulties of enforcing price control effectively have been considerable. There are also other needs for such a division: Government has decided to adopt the Metric S.I. system in respect of all measurements in Botswana, and an inter-departmental Metrication Committee has been established to supervise the change-over. The Committee is responsible for formulating and coordinating a programme which will embrace the requirements of each sector of the economy. Clearly, where it is relevant to Botswana, it will be advantageous to follow the South African programme closely. As far as members of the commercial sector in Botswana are concerned, the full concurrence and cooperation of Chambers of Commerce has already

been obtained and this will greatly facilitate metrication in the trading sector which is due to be completed by mid-1974. It is planned to have a fully operational Weights and Measures Division by the beginning of 1971 which will be able to take over full responsibility for the metrication programme.

6.34 Botswana imports over 10,000 tons of sugar annually and until now this trade has been handled by a single enterprise. However Government is encouraging the private sector to establish a Botswana Sugar Wholesalers Association, which will be able to participate in long-term supply contracts negotiated through the Botswana Development Corporation, with foreign producers. Such contracts will ensure continuity of supply at very favourable fixed prices. Another commodity the marketing of which Government is anxious to see placed on a rational footing is the Mophane worm. The worm is indigenous to the Central District and Francistown areas and is regarded as a substitute for meat by many consumers. It is popular in South Africa, but exporting in the past has been on a fragmentary basis, Botswana traders and farmers competing with one another with resultant detrimental effects on both price and supply. Here the aim is to organise the exporters into a single organisation capable of negotiating contracts with South African Wholesalers. Over the longer term it is anticipated that the Botswana Development Corporation will investigate the prospects of storing the worm in Botswana and the feasibility of processing it into a soup mix.

6.35 The service industries as a whole have been slower to expand; however, there are now two firms in Gaborone which will undertake panel beating of vehicles and another in Francistown which will repair clocks and watches. In addition, certain basic deficiencies have been met: Francistown now has a male hairdressing salon and Lobatse a dry cleaner. There is however, undoubtedly further scope for further expansion in the commercial sector. In rural areas the aim must be to get goods to the consumers rather than to expect consumers to travel large distances to the nearest store; while in the urban areas it is Government's intention to encourage increased specialisation among traders thereby improving the service to consumers. So far, Gaborone has met with most success in this field combining for example, the needs of local residents for specialist footwear and furniture shops, with tourist oriented shops dealing in handicrafts and locally fashioned semi-precious stones.

6.36 The encouragement of local entrepreneurial talent will continue to be a cardinal feature of Government policy. Here there are problems familiar to most developing countries such as the lack of tradition in commerce and shortage of capital. The Trading Act makes provision for the small general trader by having a special licence set at a low fee, and the National Development Bank offers financial assistance to potential local entrepreneurs who are interested in establishing a small business. Every effort is being made to make the small man aware of the help he can get by seeking cooperation from Chambers of Commerce, local authorities and District Commissioners. Where thery are able to indicate suitable case to Government, advice will be given which may include, for example, assistance in the preparation of loan applications. The Botswana Training Centre will continue to assist by holding courses in commercial subjects such as book-keeping and junior management and the Rural Training Institutes will organise courses for the benefit of owners of small trading businesses. Government officers are already participating in such courses giving lectures on licensing procedure, stock-keeping, costing and credit facilities. The necessity to coordinate efforts and increase the scope of training will continue to be regarded as of vital importance during the plan period.

6.37 It is Government policy to encourage town and district councils to establish local markets. Apart from bringing a wider range of goods before the public, local markets can add colour and character to urban areas. As such they represent a potential tourist attraction which should be developed, and it is intended to set aside specific areas in the major towns for this purpose.

6.38 The active encouragement of retail co-operatives described below should provide an excellent training ground for local entrepreneurs. The rapid expansion of retail co-operatives will ensure, too, that an increasing share of commerce falls within the direct control of Batswana. The participation of non-citizens in trade will be welcomed where it is accompanied by the importation of capital and skills which are not locally available. Nevertheless the localisation of the staff in the commercial sector is a key long term objective, and each establishment will be required to submit detailed plans for training and localisation. During the course of 1970 building society and insurance facilities should be made available by firms locally established in Botswana. As the presence of both these services would help increase the volume of domestic saving and encourage further investment in the commercial sector, Government is currently pursuing negotiations with outside companies able to offer such facilities. With the introduction of economic rents in the public sector, it is anticipated

that at least one Building Society will be needed to cater for the demand for home-ownership among public officers, and also to meet the rapidly growing requirements of the private sector. In time it should be possible for housing needs in Botswana to be met largely through the activities of the National Housing Corporation and such Building Societies as are established.

Tourism

6.39 Six years ago, Botswana was unknown to the tourist world except as a vast arid area on the map, lacking anything to interest the visitor. This was a very false picture; the country has much to offer the tourist. The Kalahari with its pans and great sweeps of grassland and its huge herds of game, has been opened up during the last five years. Even the remoter areas are accessible to the adventurer prepared to travel by truck and sleep under canvas. The Chobe National Park, which is easily reached from Victoria Falls, has an exceptional variety of wild animals, to be viewed either from a vehicle or from a boat on the river; its riverine stretches are a great scenic attraction and are also of much interest to fishermen. Other features of note are the Okavango Delta, teeming with game and fish; huge lakebeds, such as the Makarikari Pans and Lake Ngami, often covered by thousands of pink flamingo and pelicans; the rock paintings in the Tsodilo Hills; the ruins of famous mission stations founded by Livingstone and Moffat; the trails of the early hunters such as Anderssen, Baines, Selous and many others. The Batswana live in notable traditional villages, some of which are the largest in Southern Africa. The eastern side of the country is studded with relics of the Rhodesian pioneers and the Boer War and ruins of cultures allied to those attributed to Zimbabwe and Mapungubwe.

6.40 The Government plans actively to develop tourism in Botswana and to protect and conserve the great wildlife heritage the country contains. Already nearly 30,000 square miles have been set aside as wildlife sanctuaries and the 4,500 square mile Chobe Game Reserve has been elevated to National Park status. But setting aside areas for protecting wildlife does not in itself make for tourism. Much work needs to be done to improve access to these areas and tourist facilities within them. As explained in Chapter V, Government proposed to develop more National Parks with good accommodation and other necessary tourist facilities. Roads, petrol points, car-hire services, recreational facilities and hotel accommodation will be developed outside the proposed parks so that Botswana can be thrown open to international tourism. Already experienced safari companies are well established, catering for the hunter and photographer.

6.41 The majority of visitors to Botswana come from Southern Africa; the number of overseas tourists is a small but important proportion of the total, and it is likely that they come to Botswana as part of a tour which includes neighbouring territories. Thus, tourism will tend increasingly to fall into two over-lapping categories:

(i) *Game-viewing and hunting*: this type of tourism is normally planned in advance by the tourist and incorporated into an itinerary; it is seasonal in nature with an average length of stay per tourist of about six days.

(ii) *Occasional*: this type of tourism covers the visitor wishing to holiday for a shorter period, perhaps a long weekend, who has not done much advance planning; he would be interested in entertainment and relaxation.

It appears that there is an excess demand for game-viewing (or category (i)) facilities, and a trend towards shorter and more frequent breaks and holidays of the kind outlined in category (ii). Botswana should benefit from both trends as people look for areas of new interest, and it is expected that the growth in demand for accommodation and ancillary facilities in each of the two categories will rise steadily during the Plan period.

6.42 At present, 134 tourist beds are available, excluding transit accommodation. It is estimated that another 565 beds, including some camping, will be added by 1972, and a further 200 by 1975, bringing the total to around 900 beds available at that date. This excludes development in Kasane Township after 1972 which may account for a further 500 beds. The growth of tourist accommodation over the next five years will therefore amount to a phenomenal 670% or more, and including campers and caravaners, over 50,000 tourists are expected to visit Botswana annually by 1975. The following sections outline the measures that Government intends to take in order to try and meet the demand for facilities related to tourism during the plan period.

6.43 Government plans to develop Kasane, in the northernmost tip of Botswana, as a major tourist resort during the Plan period. There is already one 50-bed hotel established there, and another, to be built by South African Breweries Ltd., will be opened by 1972. Situated on the Chobe River, adjacent to the National Park, and only 50 miles away, by good road, from the established resort area of Livingstone and Victoria Falls, Kasane is an ideal place for development to cater for all kinds of tourists, and it is anticipated that it will induce at least a small proportion of the 80,000 annual

ZAMBIA
ANGOLA
PROPOSED CHOBE PARK LODGE
KASANE
LIVINGSTONE
VICTORIA FALLS
RHODESIA
SAFARI FISHING CAMP
CHOBE NATIONAL PARK
KHWAI R.
OKAVANGO DELTA
MAUN
MAKARIKARI SALT PANS
PROPOSED TSOE LODGE
BULAWAYO
Plumtree
FRANCISTOWN
Bobonong
CENTRAL KALAHARI GAME RESERVE
Serowe
Mahalapye
to Potgietersrus
to Thabazimbi
Kang
Molepolole
Sekoma
LIVINGSTONES MISSION
GABORONE
KOOTSE VULTURY
Kanye
LOBATSE
ZEERUST
to Johannesburg
MAFEKING
to Kuruman
to Vryburg
SOUTH WEST AFRICA
REPUBLIC OF SOUTH AFRICA
GOOD ROADS
BAD ROADS
0 50 100
SAFARI COMPANY CONCESSION AREAS
CONTROLLED HUNTING AREAS

visitors to Livingstone and Victoria Falls to spend a day or more in the vicinity. After Gaborone, it is one of the most likely sites for a casino and related entertainments complex, the feasibility of which will be included in a study of the entire area to be undertaken by consultants during 1970.

6.44 The Maun/Okavango area is also most promising for tourist development; Government proposes to formulate in consultation with the District Council a master plan for a new township geared to tourist as well as other needs. There are already a number of projects in the early stages of consideration, including the extension of the Kwai River Lodge from its present 20 to 40 beds. Given the existing difficulties of travel in this area and the long distances between centres of interest, tourism must develop initially through group travel in specialised vehicles with overnight stops in camps or lodges. To effect this, co-ordination of the activities of firms providing tours will be necessary, and Government intends to take the initiative in bringing together representatives of the relevant firms and encouraging them to form an association. The association's functions would include assisting in co-ordinating the location of camps and itineraries throughout the area, publicity and promoting the growth of tourism in Maun, and maintaining a central booking and information office. A new 100-bed hotel in the immediate vicinity of Maun is needed as a collection and dispersal centre. Government intends to encourage private enterprise to undertake this project and also to maintain an increased number of lodges and camps in the game areas; the present 50 beds and a further 50-60 more or less firmly planned provide a minimum for the immediate future but an expansion is desirable to enable an increase in the time periods tours can spend outside Maun.

6.45 Apart from improving game-viewing tracks and access roads in the Parks and Reserves, the Department of Wildlife and National Parks is constructing a road passable by saloon cars from Maun to Kasane, linking the two areas of greatest potential. It will pass the gates of the Moremi Reserve and go through the Chobe National Park. The feasibility of constructing an all-weather road from Nata to Kazungula, and of improving the ferry link with Zambia at Kazungula, is currently under study. The addition of this route to the transport network would complete a "tourist triangle", running from Francistown to Nata, north to Kasane, back south to Maun and the Okavango, and finally east through the Nxai and Makgadikgadi Pans to Francistown again. The effect of this triangle may include the possibility of attracting tourist traffic by rail from South Africa and Rhodesia, and it is intended to investigate car-sleeper services and cheap, all-inclusive holidays operated perhaps by bus from Francistown. Air travel will remain, however, an easy and popular method of reaching places such as Maun and Kasane. By 1975 Maun may expect some 3,500-4,000 tourist arrivals by air, 135-150 per week during the peak of the three month season, and Kasane some 2,000, 75 arriving each week during the peak season. The newly formed Botswana Airways Corporation already operates services to both areas, and will give close attention to the need to provide increased services at peak periods. Membership of the International Air Transport Association (IATA) will be sought by Botswana Airways Corporation, since tourists, tour operators, and travel agents find it convenient in arranging their itineraries to deal with IATA members. The advantages of co-operation between the national carriers of Lesotho and Swaziland, and possibly with an airline operating long-haul services, will be investigated.

6.46 A 120 room hotel and casino complex is planned by Amalgamated Hotels Ltd. for Gaborone, to be opened in early 1972. This development would complement similar developments in Swaziland and Lesotho. An inflow of visitors to the casino and related attractions will encourage development of other potential attractions in the area. Day tours to surrounding villages, rock paintings and the Livingstone remains at Manyana and Kolobeng, the Ootse vultury, proposed game parks at Moshupa and in the Kweneng, are all nearby features of tourist interest. Francistown will be a focal point for transit accommodation for tourists travelling by road, assuming that a number of tourists choose to travel through Francistown rather than Rhodesia to reach Kasane. At the height of the season, 125 beds may be necessary to cater for tourists and business needs combined, especially since Francistown will be the apex of the tourist triangle connecting Maun and Kasane when the relevant road links are constructed, and if occupancy by business visitors is 50% or more. A motel to cater for both types of transit traffic may also be viable.

6.47 To cope with the many problems that will inevitably arise from a growing tourist industry, Government proposes to establish a National Tourist Office within the Ministry of Commerce, Industry and Water Affairs. The Office will be run by Tourist Officers, shortly to be appointed, and advised by a Board composed of various interested parties in the tourist industry. By 1973, a change in the composition of the Board and conversion of the organisation into a statutory body may be necessary. The Tourist Office will have a shop front and will be located at first in Gaborone, and during 1971-1973

Tourists in Chobe National Park (Optima – Struan Robertson)

Kwai River Lodge

a similar office will be established in Johannesburg, possibly in conjunction with Botswana Airways Corporation. The functions of the Office will be to assist firms in the tourist industry to co-ordinate their activities, advise Government on the appropriate measures to control the industry, arrange publicity both abroad and in Botswana, receive complaints and new ideas and advise on the consequent action to be taken. The Office would study the possibilities and advantages of co-operation with tourist organisations in the neighbouring territories, two of which have already expressed much interest. The Office will need to acquire expertise for handling problems of standards, incentives, training and so on, and for this reason the desirability of the Tourist Office becoming a member of the International Union of Official Travel Organisations, (IUOTO), will be considered at an early stage. Government and hoteliers are keen to see a system of voluntary hotel grading introduced in Botswana, which enables standards to be enforced and informs potential visitors of the range of facilities they can expect to find. Apart from consideration as to how inspection of accommodation can be implemented in Botswana, the Tourist Office's responsibilities will be to ensure that other standards in all respects are maintained.

6.48 Government is mindful of the need to ensure an adequate supply of efficient and skilled hotel staff, and training courses, possibly under the auspices of the Brigades Movement, will be created as required. Training must be provided by private investors themselves in the initial years, and it is not anticipated that a full-scale training programme by Government will be needed until after 1973, when the second wave of hotel development is projected to begin. Training is essential to ensure the success of the Government's localisation policy. It is realised that a blind demand for localisation without adequately trained men and women to take the place of expatriates is self-defeating. It is to the benefit of both the investor and the country that localisation takes place to the highest levels possible as rapidly as possible, taking into account the ability of each firm to recruit and train men in special skills and of Government to provide training schemes.

6.49 It is Government policy also to encourage private enterprise to set up the required tourist facilities. Three factors will be present in the future to assist investors:

(i) the Botswana Development Corporation (BDC), established during 1970, will undertake specific feasibility studies, investigate the market for tourism, and initiate new projects in partnership with private firms wishing to establish or expand in Botswana.

(ii) Government is examining currently the whole of the tax structure including the question of providing adequate investment incentives in the tourist industry; it is proposed, too, to adopt the South African system of hotel grading which is related to taxation.

(iii) to permit the tourist industry to develop as rapidly as possible, Government plans to provide an infrastructure of basic services in the main areas of tourist interest; the new Tribal Lands Act, which comes into effect during 1970, will facilitate the orderly utilisation of land for commercial and tourist purposes.

6.50 It is estimated that an additional income of some R2 million, exclusive of revenue from gambling, will be generated in the economy by 1975 by tourism. Government revenue alone will amount to around R1 million by 1975, including the taxation of gambling. Although much of the return on capital invested in the early years may be remitted, the BDC will be in a position to plough back its share of the profits into new projects and encourage new investment at the same time. Multiplier effects of the additional income will not be very substantial in the initial years, mainly because of the lack of domestic industries. Nevertheless, the resultant expansion of the domestic market for foodstuffs, manufactures and handicrafts will provide new industrial opportunities. Excluding Kasane resort development, the tourist industry should provide direct and indirect employment for some 450 persons by 1973, and this number will steadily expand with localisation, and as the industry itself grows.

Table 6.1

Estimated Composition of Tourist Expenditure 1975
(excluding Kasane Resort)

Item	%	*Hotel Tourists* (R.000)	*Campers* (R.000)	*Total* (R.000)
Accommodation, food, and drink	70	1,069	76	1,145
Transport and Entertainment	25	382	27	409
Shopping and sundry	5	75	5	81
	100	1,527	108	1,635

Source: Ministry of Commerce, Industry and Water Affairs

Table 6.2 Added Employment in Hotels 1970-75

Type of Employment	%	*Number*
Housekeeping	23	81
Food Services	23	81
Food Preparation	14	49
Bar Service	9	31
Reception	5	17
Maintenance	4	14
Other, inc. Management	22	77
	100	350

Notes:
A. Excludes Kasane Resort
B. Assumes Average Bed/Staff Ratio of 2.5
Source: Ministry of Commerce, Industry and Water Affairs

Chapter VII – Mining Development

Mineral Resources:

7.1 Peak mineral production in Botswana in recent years took place in 1961, valued at R616,129, resulting from the mining of gold and silver, asbestos fibre and manganese ore. After 1961 there was a gradual decline in the value of mineral exports which continued until 1967. During 1967 small-scale manganese-ore mining was revived in south eastern Botswana and this has shown continued growth ever since. The value of mineral production, consisting largely of exports of diamonds, manganese ore, with minor exports of talc and semi-precious stones, exceeded R592,000 during 1969. During the Plan period considerable mining development is anticipated, dependent on private enterprise. It is expected that full-scale diamond mining activity will commence during 1971, copper-nickel mining in 1973/74, and salt and soda ash by 1975. Small-scale coal mining is also planned to commence by 1973/74. The manganese-ore mining is expected to continue and expand, while the possibility exists that development of known gypsum deposits could commence at a relatively early date. Other mineral development possibilities also exist; thus a major mining economy should be established in Botswana by the end of the Plan period.

7.2 Thirty-five Special Prospecting Licences for a variety of minerals and over areas of vastly different size are currently in force in Botswana. This excludes Mining Leases in force or being negotiated as well as activity being carried out in privately-owned mineral right areas. Other applications are under consideration.

7.3 *Manganese ore* is being mined at two localities in south eastern Botswana. The one is south east of Lobatse, adjacent to the Transvaal border, and the second, and more important, occurrence is at Kgwakgwe south of Kanye and some 35 miles north west of Lobatse. At both mines battery-reactive manganese dioxide is produced as well as lower grade manganese dioxide products used in chemical industries, particularly in uranium recovery plants. Metallurgical grades of manganese ore are also produced at Kgwakgwe mine. At the Kgwakgwe mine it is anticipated that production of battery active manganese dioxide will soon be doubled to a level of about 4,000 tons per month. Other exports are expected to total about 4,500 tons of manganese ore per month of chemical and metallurgical grades of ore.

7.4 One of the most important mineral discoveries made in Botswana in recent years was the discovery in 1966/67 of a new kimberlite province by De Beers Prospecting Botswana (Pty) Ltd. in the Orapa area, west of Letlhakane, south of the Makgadikgadi and about 110 miles west of Francistown. A number of kimberlite pipes, certain of which carry *diamonds* in economic quantities, have been located. One of the pipes, known as AKI, is very large and detailed evaluation studies have been carried out on this pipe to a maximum of 120 feet depth. In May, 1969, it was announced that the AKI pipe was undoubtedly a payable proposition. De Beers have announced plans to work the AKI pipe on a large scale and production is planned to commence during the second half of 1971. No details have been released regarding grades, but it is known that the pipe contains a high percentage of industrial stones compared with gemstones. In addition to the work at Orapa, De Beers Prospecting Botswana (Pty.) Ltd. are continuing regional diamond prospecting operations over large areas elsewhere in Botswana.

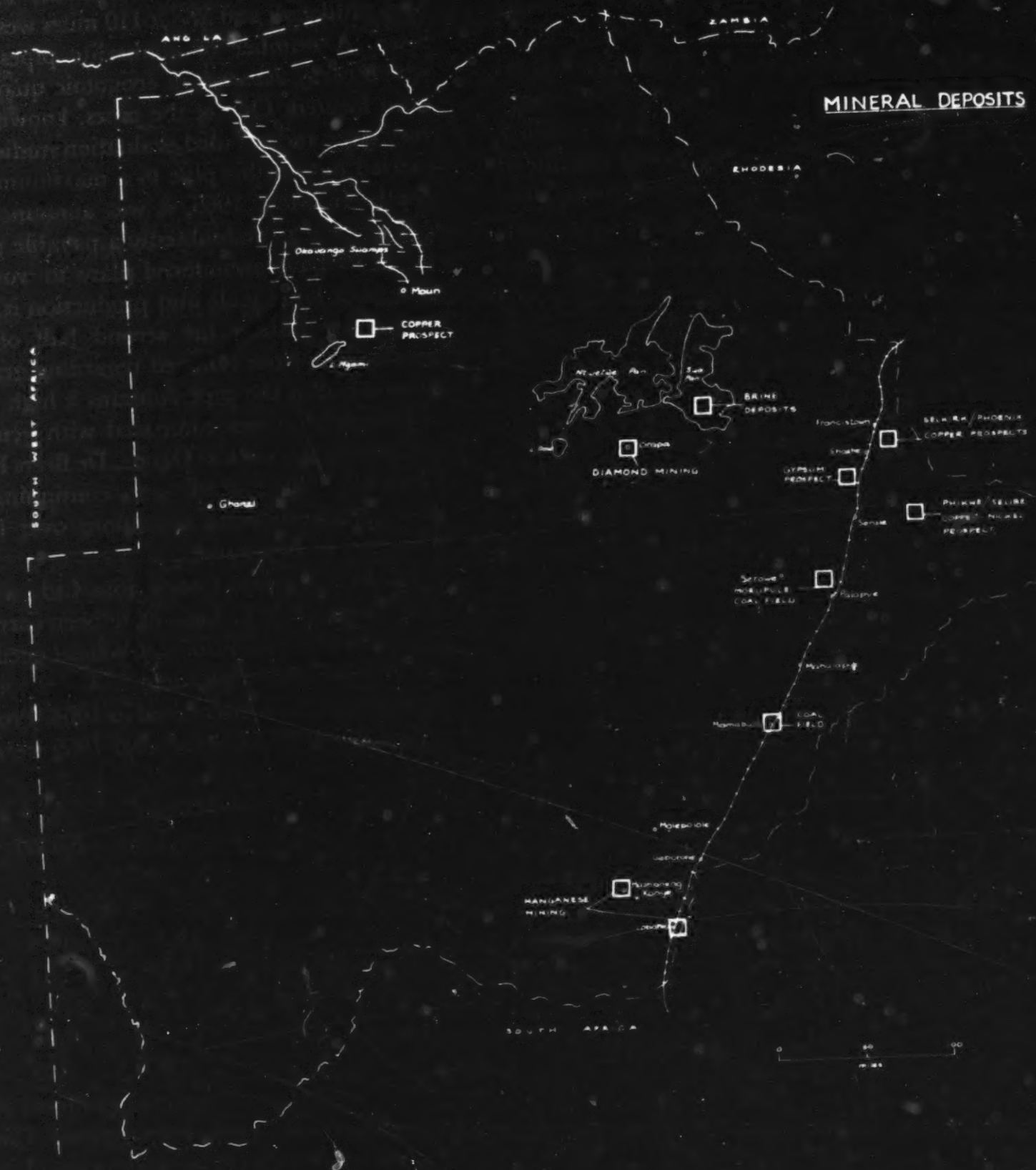
7.5 Bamangwato Concessions Ltd., a subsidiary of Botswana R.S.T. Ltd., have been carrying out a detailed examination of *copper-nickel* occurrences in the Selebi-Pikwe area some 55 miles south east of Francistown, first discovered in 1964. Probable and proven ore reserves in October 1969 were stated to be:

	Million Short Tons	% Nickel	% Copper
Pikwe			
Proven	21.3	1.54	1.2
Probable	10.9	1.11	1.05
Selebi			
Proven	10.5	0.66	1.57
Probable	3.0	0.92	1.32

7.6 In addition to these copper-nickel deposits in the Selebi-Pikwe area, Bamangwato Concessions Ltd. located interesting *copper* deposits in the Matsitama area, about 50 miles west-northwest of Francistown, in 1963/4. Diamond drilling and shaft sinking operations have been carried out on the more encouraging prospects and in March 1968 it was announced that ore reserves totalled:

	Million Short Tons	% Copper
Proven	4.7	2.24
Probable	1.72	2.15
Oxidised ore	1.46	2.87

Since that date no further work has been carried out by Bamangwato Concessions Ltd. on these copper occurrences, or on related copper occurrences known to be present over an area extending to the


ANGOLA
ZAMBIA
RHODESIA
SOUTH WEST AFRICA
SOUTH AFRICA
MINERAL DEPOSITS
Okavango Swamps
Maun
COPPER PROSPECT
Ghanzi
BRINE DEPOSITS
DIAMOND MINING
GYPSUM PROSPECT
MANGANESE MINING
COAL FIELD

old Bushman copper mine, situated some 40 miles north west of Matsitama; instead they have concentrated their activities on the development of the Selebi-Pikwe copper-nickel deposits. In addition to copper and copper-nickel deposits Botswana R.S.T. Ltd., through its wholly owned subsidiary company Makarikari Soda Ltd., has been actively investigating the possibility of producing common *salt*, *soda ash* and *sodium sulphate* from the extensive brine deposits known to be present in the Makgadikgadi region west of Francistown. Sufficient reserves of brine have been proved to sustain a long term operation at the estimated minimum levels of approximately 80,000 tons soda ash and 100,000 tons of salt per annum. Commercial production is projected to commence within the Plan period.

7.7 Geological investigations of coalfield areas adjacent to the railway line at Morupule, six miles west of Palapye, and at Mmamabula, some 80 miles south of Palapye, were carried out by the official Government Geological Survey in 1957-59. These studies proved total coal reserves in the areas examined of 150.5 million tons in an area of 9.38 square miles at Morupule and of 408 million tons within a defined area of 17 square miles investigated at Mmamabula. At Morupule, the coal-bearing formations extend well outside the relatively limited area investigated in detail. The African and European Investment Company Ltd., with the Anglo-American Corporation (South Africa) Ltd. as their technical advisers, have carried out a core drilling programme in the Morupule area to test earlier data. They have recently been granted an extension to their original grant area at Morupule in order to prove the full extent of coal reserves likely to occur within economic mineable depths in this area. The considerable coal reserves in eastern Botswana might be exploited on a large scale to feed a major power station to supply a national grid. The exportation of power could also be considered. Extensive investigations of these possibilities will be carried out during the Plan period.

7.8 Certain other base mineral occurrences of possible economic importance have been discovered over the past five years. Two of the most important these are probably the *copper-nickel* occurrences of Selkirk and Phoenix, situated about 20 miles south east of Francistown in the privately-owned mineral right area of the Tati Concession in north eastern Botswana. The mineral rights over these copper-nickel occurrences have been purchased by Tati Territory Exploration Co. (Pty.) Ltd. The latter company has now entered into an agreement with the Anglo-American Corporation (South Africa) Ltd. to evaluate the economic potential of these occurrences and detailed prospecting work commenced during 1970. Boreholes at Phoenix have intersected two promising zones of massive copper-nickel sulphide mineralisation and disseminated mineralisation is also present. At Selkirk, which appears to be the more promising prospect disseminated copper-nickel sulphides have been intersected in all boreholes drilled there, with zones of massive sulphides. The stage has now been reached at Selkirk where, due to the relative consistency of the ore body, work has passed from the prospecting phase to a detailed proving of the ore reserves.

7.9 Detailed studies have been carried out by Mineral Research Ltd., on *gypsum* occurrences located in 1964 in the Lebung area about 40 miles south west of Francistown and some 30 miles west of rail. In 1964 the Geological Survey estimated that at two main localities reserves of gypsum are between 1.23 and 1.68 million tons. Mineral Research have now located other deposits closer to railhead and development appears now to depend on the development of necessary water supplies for mining purposes.

7.10 Other prospecting activity includes the investigation by subsidiary companies of the Anglo-Transvaal Consolidated Investment Co. Ltd. of large areas of the north western (Ghanzi) State Lands and areas of the North West District with primary attention focused on the possibility of copper mineralisation. Certain discoveries have been made, but much additional work is necessary to determine not only their possible economic potential, but also, their mode of occurrence. In addition to their mining activities at the Kgwakgwe Hill mine, Botswana Exploration and Mining Co. Ltd. have been carrying out prospecting operations, mainly for manganese-ore, in their neighbouring grant areas. The same company has also been examining the potential of certain building stone in the Kanye area. Cyril Hurvitz Exploration Co. (Pty.) Ltd., holders of prospecting rights for a variety of minerals over certain areas in south eastern Botswana, has been carrying out airborne geophysical, ground geophysical and ground geochemical surveys in all their grant areas. The Johannesburg Consolidated Investment Co. Ltd. has been awarded a grant for precious and base minerals over a large area in south eastern Botswana and is carrying out regional studies. In north eastern Botswana, the Anglo-American Corporation (South Africa) Ltd. has been engaged on regional geochemical surveys, mainly directed towards the discovery of base metallic mineral deposits, in the privately owned mineral right area of the Tuli

Start of a big hole at Orapa.

Diamond recovery plant at Orapa.

Block. Drilling teams have been in operation since 1969 evaluating certain discoveries there. International Nickel S.A. (Pty) Limited, a subsidiary of International Nickel Company of Canada, is prospecting for nickel and copper over a limited area in North-eastern Botswana. Elsewhere in the country prospecting activity is being carried out in selected areas for *radioactive minerals* by Bamangwato Concessions Ltd.

7.11 Other known minerals include potential *fireclays* and *ceramic materials;* high silica quartz required in fluxing processes; and a number of other metallic and non-metallic base mineral occurrences which further prospecting work may show to have an economic potential, whose worth will grow with a developing mining economy in Botswana. High grade *limestones* are known to be present in certain areas and with a view to future agricultural development, apart from the needs of the growing mining industry, certain deposits could well be exploited within a few years.

Major New Mines:

7.12 As described above there are important deposits of diamonds at Orapa, of copper-nickel at Selebi-Pikwe and of coal at Morupule. The exploitation of these resources requires very large co-ordinated investments during the first three years of the plan period by both the Government and the mining companies; in the north-east these will give rise to a complex of developments known as the Shashe Complex.

7.13 The concession holders for the deposits at Matsitama and Selebi-Pikwe (Bamangwato Concessions Limited) have recently concentrated their exploratory efforts on the latter. Studies have shown that the deposits can best be developed by mining at an annual rate of 2,160,000 short tons of ore, of which initially 1,500,000 tons would be mined at Pikwe and the balance at Selebi. There are sufficient proven deposits for about 20 years of mining operations. The ore would be treated at a common plant consisting principally of a concentrator and smelter, equipped to produce 44,000 short tons of copper/nickel matte and 125,000 short tons of sulphur annually. The matte would be shipped overseas for treatment to yield approximately 13,700 long tons of nickel and 15,800 long tons of copper annually. The total capital required by the mining company for this project will be approximately R70 million: the company is conducting negotiations for the procurement of loan finance, coupled with the refining of matte and subsequent sale of metal.

7.14 Parallel with the concession holders' viability studies, feasibility studies of the infrastructure requirements for the project have been conducted on behalf of the Government by Sir Alexander Gibb & Partners of London. These studies were financed by the United Nations Development Programme and the United Kingdom Government. They have shown that the following facilities will need to be provided, at a total cost of approximately R33 million:

(*a*) *Water Supply*

7.15 A dam on the Shashe River near Tonota with a capacity of approximately 70,000 acre-feet, yielding up to 7.9 million gallons per day, with trunk water mains to Selebi-Pikwe, Shashe Siding and Francistown, and ancillary works. The capital cost is estimated at R6 million.

(*b*) *Electric Power*

A 45-megawatt thermal power station at Selebi-Pikwe with transmission lines to Francistown and Shashe Siding. The capital cost is estimated at R15 million.

(*c*) *Township*

A township and municipal services at Selebi-Pikwe for an initial population of 7,500, which is expected to rise to 25,000 by 1980. The capital cost is estimated at R9 million.

(*d*) *Transport*

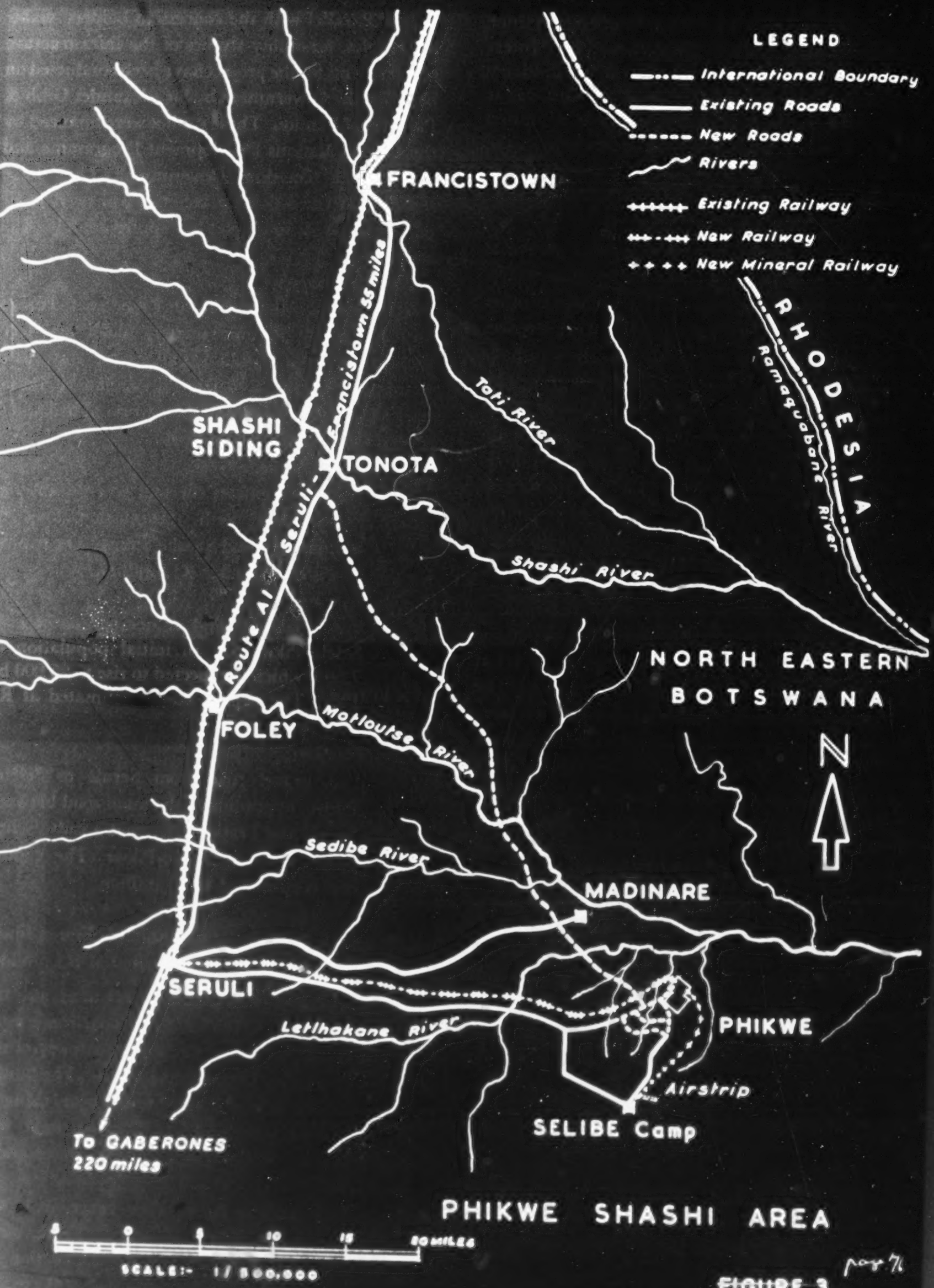
A gravel road from Serule to Selebi-Pikwe, upgrading of the main road between Serule and Francistown, and a railway line from Serule to Selebi-Pikwe. The capital cost is estimated at R1 million.

(*e*) *Hospital*

A 350-bed referal hospital at Francistown. The capital cost is estimated at R3 million.

7.16 The proposed copper-nickel mine and the power station will be provided with coal from a mine at Morupule, to be operated by a company of the Anglo American Corporation group. The initial rate of mining will be 115,000 tons a year, rising to 142,000 tons a year by 1980. The coal mine will employ about 300 workers, almost all of them Batswana.

7.17 Negotiations have taken place with the World Bank for the supply of funds for the development of the infrastructure. In this connection an appraisal team from the Bank has visited Botswana and is preparing its report on the project. It is anticipated that finance will be made available by the International Bank for Reconstruction and Development and by various bilateral agencies in



PHIKWE SHASHI AREA

FIGURE 3

early 1971. Meanwhile, a credit of R1.78 million has been made available to the Government by the International Development Association for detailed design and engineering work which Sir Alexander Gibb & Partners have been commissioned to undertake.

7.18 It is anticipated by Government that mining should start in 1973, and the programmes for the development of the mine and of the infrastructure have been phased accordingly. A temporary water supply system, for which water is being extracted from the sands of the Motloutse River, has been constructed with a grant of R425,000 from the United Kingdom Government. The construction of advance housing for Government at Selebi-Pikwe is expected to begin early in the second half of 1970. It is hoped that the other elements of the infrastructure will be under construction by late 1970.

7.19 The Government is setting up a project management team to supervise the construction of the infrastructure, and power and water corporations to operate these facilities when complete. During the construction period the management team will be responsible to the Minister of Finance and Development Planning. The leader of the team will be located in that Ministry and will be responsible for the general co-ordination of the project.

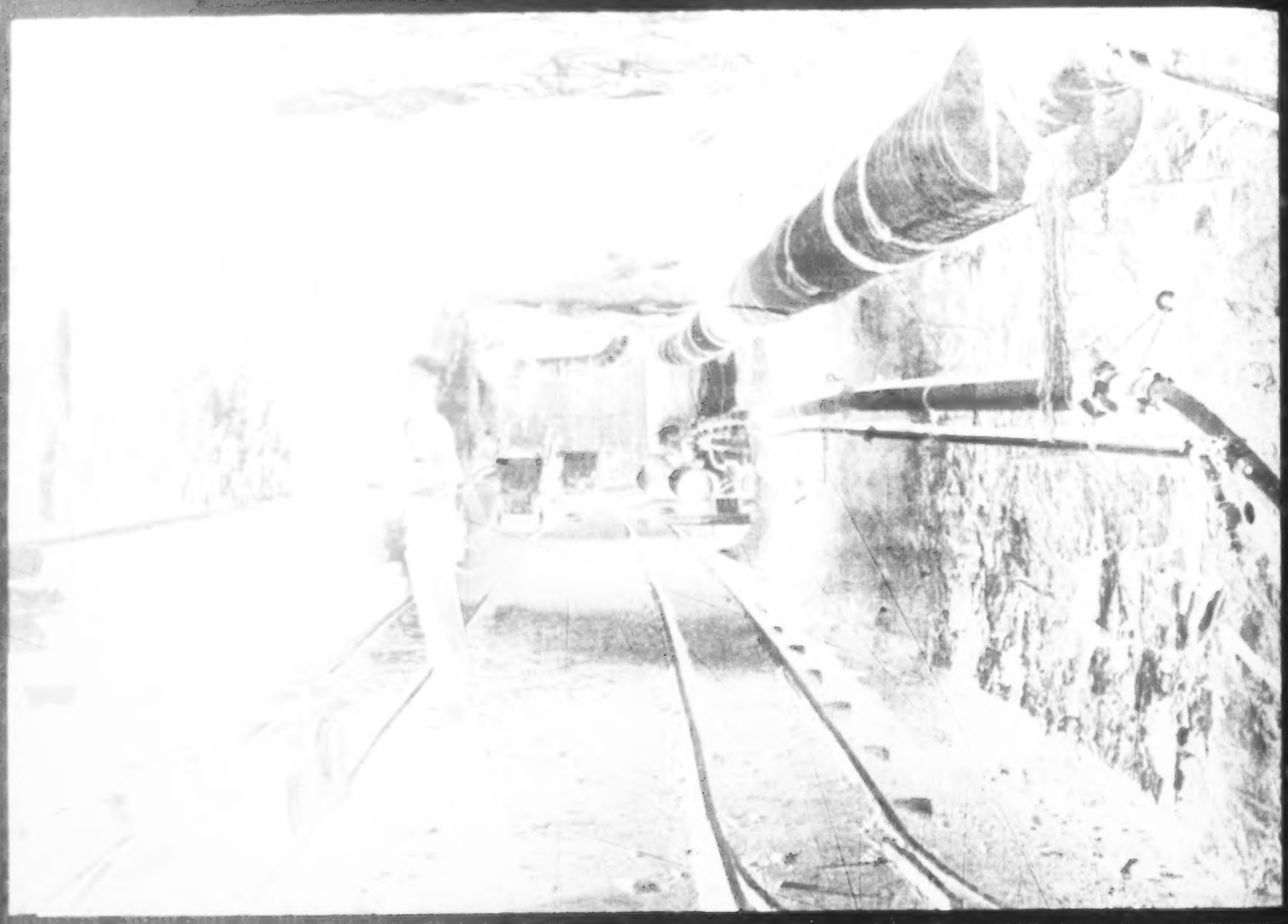
7.20 The power and water utilities will be required to generate sufficient revenue to meet at least their debt-servicing obligations, and would enter into long-term contracts for the supply of power and water to the mining company. The Township Authority, too, will be required to raise revenues to cover its capital costs; an agreement would be entered into with the mining company to provide for an annual contribution from the company representing its share of the common capital costs. The cost to the Government of the rail spur will be met from a tariff surcharge. Much of the project would therefore be self-financing. The costs left to be financed by central government would comprise the capital and recurrent costs relating to central government services, and those relating to roads and the Francistown hospital.

7.21 The immediate general economic benefits arising from the project are more difficult to estimate than are the direct benefits to the Treasury; the latter are set out below. The mining company is expected to employ about 2000 workers of whom initially 300 would be expatriates. It is intended that the proportion of local workers should be increased to an estimated 1850 in 1980. Including all related and induced employment (and assuming an approximate one-for-one ratio between direct and secondary employment), the number of jobs created for local workers is estimated at 3500 in 1974, rising to 5300 in 1980. The corresponding figures for expatriates are 380 and 235 respectively.

7.22 The wage income generated by this employment is conservatively estimated at R3.45 million in the first full year of operation. Of this total, the mine and its associated activities would account for R2.4 million. A higher proportion of wage income than of employment will benefit expatriates in the initial period, but this proportion will fall as localisation proceeds. It is the Government's aim to achieve full localisation by 1990.

7.23 The revenue to Government expected to result from the project is of three main kinds: mining taxation; taxation of the employment income generated by the project; and customs, excise and sales duty. Of these, the first will be low initially, and may reach its peak in the mid-1980s, thereafter levelling off. Revenue from the second and third sources will be highest during the construction period, and will make a significant contribution to Government revenue throughout the life of the mine. Personal income tax collections are expected to rise to R500,000 a year during the construction period, to fall to R240,000 in 1974/5 and to rise steadily thereafter, reaching R300,000 in the early 1980s. Revenue transfers under the Customs Union Agreement attributable to the project are estimated at R17.4 million up 1974/5 as a result of heavy imports during the construction period. Thereafter they are expected to settle down to an annual rate of approximately R1.5 million. It must be emphasised that revenue projections are very tentative and will depend, among other things, on the number of secondary activities stimulated by the existence of the mine, which it is difficult to forecast. Revenue and expenditure projections are given in table 7-1.

7.24 The diamond mining development at Orapa, 150 miles west of Francistown, will be undertaken by De Beers Prospecting Botswana (Pty) Limited. It is at a more advanced stage than the Selebi-Pikwe copper-nickel mining development. Bulk sampling is taking place, with a view to production in mid-1971. The mining company is investing approximately R16 million in the first stage of development, and a further investment of approximately R7 million will take place in 1973/74 with a view to bringing stage two into production in 1975. The De Beers Group itself is providing the major part of the infrastructure, Government



Crosscut from the bottom of the central ventilation shaft at Pikwe.

Test solar evaporation ponds, laboratory and meteorological station — Makgadikgadi Depression.

investment being limited to R2.25 million for a road and R50,000 for a telephone line from Francistown to Orapa. Loans for these expenditures have been made to the Government by the company. Stage one of the civil engineering works for the recovery plant and the township at Orapa are being constructed at a cost of R3.6 million, and at the same time the water supply for the mine is being assured by the pumping of water from the Boteti River into the Mopipi Pan and the construction of a pipeline from the pan to the mine. The pipeline will be laid in early 1971 to be ready for the start of mining.

7.25 Diamond mining is less labour intensive than copper-nickel mining, and for security reasons Orapa will form more of an enclave than Selebi-Pikwe. The township will be open only to persons directly connected with the mine and necessary related services. The initial numbers directly and indirectly employed will be approximately 400 Batswana and 110 expatriates, rising to 670 Batswana and 140 expatriates in 1975.

7.26 The Orapa mine will start to generate taxation revenue to Government in 1971/2, and the figure may reach R6 million a year by 1976/7. Taking the two mining ventures together, the annual revenue generated will greatly exceed the annual cost of Central Government services and of debt servicing associated with the Shashe Project. In estimating revenue and expenditure, it is assumed that the power and water authorities and the railways will charge tariffs sufficient to cover their costs. In the case of the Selebi-Pikwe township, the Government will meet any deficits during the first three years, until it is possible to impose rates or raise local revenue by other means. Apart from this, the costs to be recovered by central government comprise:

The recurrent cost of central government services;
Road maintenance costs;
Debt servicing in respect of roads and central government buildings.

These costs will be partly offset by revenue from:
The temporary water supply;
Rental from Government housing;
Hospital charges.

In the table below, the line "other revenue" comprises revenue from these sources. The item for "debt servicing" assumes a 25-year loan at 8% with a four-year grace period.

7.27 The increased revenue to the Government will be vastly in excess of the additional costs, and will contribute to an increasing budgetary surplus for investment elsewhere in the economy. The Government intends that emphasis shall be placed in particular on rural development and the creation of new secondary industries so that the benefits from the massive investment in the exploitation of mineral resources should benefit the whole population and provide the basis for sustained long-term economic development.

7.28 Apart from the developments described here, there are further prospects for the development of mineral resources under investigation in north-east Botswana. These include soda-ash and salt deposits in the Makgadikgadi depression (under investigation by Makgadikgadi Soda Ltd.), copper deposits at Matsitama and possible copper-nickel deposits in the Tati area. The development of these resources would require infrastructure facilities which will need to be co-ordinated with the Shashe Complex facilities currently planned.

Table 7-1 Revenue and Expenditure – Shashe Complex

R'000	1970/71	1971/72	1972/73	1973/74	1974/75
Revenue					
Selebi-Pikwe Tax	-	-	-	-	750
Orapa Tax	-	799	1,589	1,589	2,774
Customs Revenue	-	180	2,140	6,770	8,350
Income Tax	50	390	525	390	240
Other Revenue	2	18	53	101	2,705
Total	52	1,387	4,307	8,850	14,069
Revenue					
Recurrent	30	184	229	388	414
Debit Service	-	-	-	-	2,169
Surplus	22	1,203	4,078	8,462	11,489

Marketing of Minerals

7.29 In making the above projections a nickel price of R2,080 per long ton and a copper price of R800 per long ton have been assumed. The nickel price is equivalent to the current INCO Producer Price (allowing for transport costs to Germany). It is considered likely that it will remain there at least until the mid-1970's, when large new mines are expected to come into production and create a better balance between supply and demand than now exists. Prices could soften at that point, although it is quite possible that they will remain at their present level, or even rise because of new demand stimulated by the prospect of assured supply. Not all the prospects presently considered as firm will have matured and strikes in the plants of important producers appear to be difficult to avoid. On the most conservative assumptions, the

price at which BCL is able to sell its nickel is unlikely to fall below R1,760 per long ton between 1975 and 1978.

7.30 The current LME copper price is in excess of that assumed in this Plan, but the indications are that it will fall. Substantial new copper finds have been made, and the recent high prices have been stimulating substantial new investment in copper mines. It is therefore expected that the copper shortage of the 1960's will make room for at least a balance of supply and demand, if not for a minor excess of supply, in the short run. A conservative estimate suggests a floor price for copper in the 1970's of R688 per long ton.

7.31 The sulphur price used in this Plan is of the order of R23 - R24 per short ton, which is slightly below current South African prices. It is considered that this estimate is reasonable in the circumstances.

7.32 The price assumed for cobalt (which will be recovered in small quantities from the matte) is R1.70 per pound, which is equal to the current U.S. market price. The risk in the event of the price falling below this level will be borne by the refining agency.

7.33 The world market for diamonds is virtually controlled by the Central Selling Organisation through which Botswana's diamonds will be sold. Recent developments give rise to some fears as to whether the gradual long term upward trend in diamonds can be maintained. However, the Government is confident that the price for diamonds will not decline significantly.

Chapter VIII – Physical Infrastructure

Roads

8.1 The geographical situation and physical features of Botswana create acute transport problems. The productive areas of the country enclose the Kalahari Desert – an immense area where almost no economic activity takes place but which is a serious obstacle to communications. The fact that the population centres are mostly small and scattered aggravates the problem. Road construction is costly because the distances to be covered are great also causing maintenance costs to be high.

8.2 An efficient communication system is a prerequisite both to the balanced economic development of Botswana, and to the maintenance of her territorial integrity. However, the demand for transport per unit of surface area is extremely low with only 3 people to the square mile and a per capita income of approximately R67 per annum. Botswana has fewer vehicles per mile of road than any other country listed by the International Road Federation. Under such conditions the returns to investment in roads are bound to be rather low except in a few restricted cases. It is understandable, therefore, that while Zambia and Uganda, for example, which are comparable in size, intend to invest approximately 5% of their total government expenditures in roads, Botswana will spend only 3.5%. This expenditure will be the result of careful judgement in terms of timing, costs and benefits so that only the most beneficial investments are made.

8.3 There are two particular problems which have to be overcome when planning Botswana's road development programme. The first is related to the central role which the railway plays in Botswana's economy, not only as the main transport link for imports and exports, but also as the carrier for the overwhelming proportion of internal tonnages. Until recently the Railway has not received close study, but the necessity for a detailed investigation is fully recognised and Consultants have been engaged. Once their report is received Government will be able to make investment decisions in the light of railway costs and tonnages and other data which will be provided. Secondly, there is insufficient data both about modes of transport, operating conditions, and about the economy as a whole, for Government to form a detailed and fully-justified long-term transport strategy. Such a strategy would not only co-ordinate investment within the transport sector, but would help to maintain a proper balance between investment in transport and all other sectors of the economy. For this reason Government intends to give high priority, at the beginning of the Plan period, to the collection of transport and other statistics, and more especially to a sample census of road Traffic.

8.4 In the meantime the criterion of least cost has been applied to all road upgrading projects. This formulation implies that upgrading will reduce costs to Government (for maintenance), and to users (by cheaper vehicle operation). Existing traffic and projected growth are taken as a basis for calculation. No estimate is made of the wider benefits, trade effects, etc., which may be related to improved roads. Normal traffic growth has been assumed to be 10% per annum over the next five to ten years on main routes. This estimate may seem to be high in comparison with other countries, but is justified on the following grounds. The establishment of a mining sector will raise National Income by at least 10% per annum over this period. Initially the effects will be felt most strongly in the small money sector which is the source of present traffic. Studies in other countries have shown that the demand for transportation has an income elasticity higher than unity i.e. people spend more than the proportionate rise in their incomes on transport. It is therefore possible that the demand for transportation may in fact rise by well above 10%.

8.5 The least cost formulation will not however be applied to new roads because road maintenance and traffic costs alone are, in those cases, an insufficient criterion on which to base decisions. There are two new roads being studied with the intention of implementation during the Plan period. These are the road from Kanye to Ghanzi, and the road from Nata to Kazungula. In the latter case, a full cost-benefit study is virtually complete, and a similar study is intended for the former. As data from a traffic census is processed, and more general information on the economy becomes available, more projects will be subjected to cost-benefit analysis, and the criterion of least-cost based on existing, and projected traffic growth, will be given less weight.

8.6 There are two final points. The first concerns general legislation for road transport, vehicle licensing, and road maintenance and construction. This is under preparation. A uniform system of vehicle licensing will be introduced following a review of taxation so that user charges may be made to reflect more closely real economic costs, and where subsidies are considered justified, these will be clearly identified. Secondly, Botswana has 5000 miles of road, about half of which Government is responsible for maintaining. For the most part

ROADS IN BOTSWANA
Main Roads
Secondary Roads
Tracks
Proposed Roads
ZAMBIA
ANGOLA
Kasane
Kazungula
Livingstone
Nkoma
Panda-ma-Tenga
Shakawe
RHODESIA
Maun
Nata
Bulawayo
Rakops
Orapa
Francistown
Letlhakane
Ghanzi
Serule
Selibe Phikwe
Bobonong
Serowe
Palapye
Boines Drift
Mahalapye
Martins Drift
Parr's Halt
Buffels Drift
Kuli
Nojane
Kang
Tsane
Letlhakeng
Lokala
Molepolole
Thamaga
Gaborone
Ramoutswa
Kanye
Lobatse
Werda
Bray
Pitsane
Mafeking
Tsabong
REPUBLIC OF SOUTH AFRICA
SOUTH WEST AFRICA
0
100
miles

these roads have poor earth and gravel surfaces and are under-maintained. To ensure adequate communications it is essential that regular and efficient road maintenance be carried out. Government is therefore investing in road maintenance depots (see Project PW10) and will increase the financial provision for road maintenance above the 1969/70 level.

8.7 The major road project during the Plan period will be the paving of the road from Sebele siding, seven miles north of Gaborone, to Pioneer Gate to the west of Lobatse, and including a small fork from Lobatse to the junction with the Kanye road. The total distance involved is about 60 miles. Vehicle counts show that between 200 and 400 vehicles per day travel between Gaborone and Lobatse and the peripheral sections will be carrying between 150 and 250 vehicles per day by the time the road is under construction. On least cost criteria the paving is fully justified (see Project PW01).

8.8 Key betterment works have already been completed on the ring road linking Gaborone, Molepolole, Thamaga, Moshupa, Kanye, and Lobatse. Before further work is undertaken it is essential that a traffic census be undertaken to identify the flows of traffic in this region, this will be done in 1970. Studies which are being made of the North East District are likely to indicate a need for road improvement in that area. The need to upgrade and realign the Maun to Shakawe Road will also be investigated. This road planning work which will be completed in the first two years of the Plan will result in the identification of a number of new road projects to be implemented in the last three years of the Plan period.

8.9 Under the I.D.A. Roads Project, work was undertaken to improve the North South Road and raise it to all weather standards. However, two major sections south of Mahalapye remain in poor condition. These are a nineteen mile section from Pilane northwards, and a fifty-nine mile section from just north of Artesia to Palla Road. Both are of poor dirt quality, and have been canalized by repeated grader operations which makes them into water courses during the rains. Both sections will be reconstructed on new alignments which will save a total of thirteen miles. It is also planned to upgrade the section of road between Francistown and Seruli in the anticipation of heavy increases in traffic once mining begins. This will involve gravelling and small realignments, but no major construction (see Project PW06), until possibly late in the Plan period.

8.10 Road construction will be necessary in Gaborone, and Francistown townships to serve new extensions to be built in the Plan period (see Projects PW03). In the first instance these roads will merely be earth surfaced but gravel or bitumen surfacing will be added when traffic levels have risen sufficiently to justify upgrading.

8.11 A study has recently been made of the possibility of building a road from Nata to Kazungula. The final report is at present awaited. The draft reports indicate that the link is economically viable but that this viability depends upon the development of resources in Northern Botswana and increased trade with Zambia. On the other hand the road itself will undoubtedly contribute to the feasibility of opening up these resources. Other factors such as the link this road will establish between Zambia and Botswana and through Zambia with East and Central Africa make the whole project even more attractive. A new ferry across the Zambesi will be included as part of the road project (see PW18).

8.12 The present road linking Kasane and Ngoma carries heavy traffic across the paths of the game in the Chobe National Park. Its location sets a severe limit to the tourist development of this beautiful area and it is planned to construct a new road by-passing the village of Kasane and realigned further inland for almost all of its route (see Project PW19).

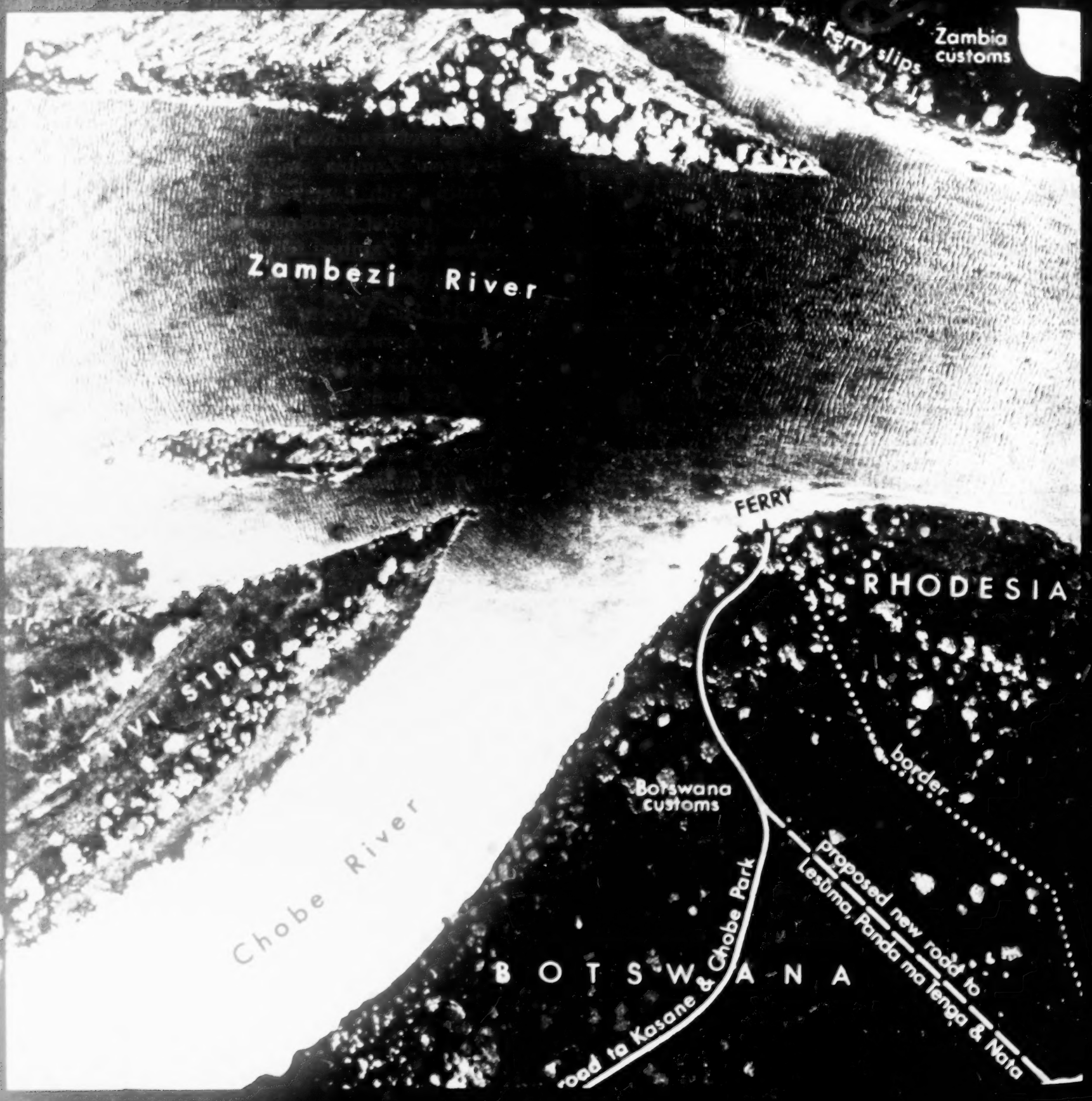
8.13 It is proposed to improve road communications with the Molopo Farms which has become an important ranching area. At present access to the Molopo Farms from the main centres of population in Botswana is difficult, and most of the traffic travels via the Republic of South Africa. It is, therefore, planned to upgrade the road linking this area to Lobatse.

8.14 As mentioned, study is being given to a road from Kanye to Ghanzi via Kang. The main justification for this road will be the value of cattle shipped by truck and the development impact which it has on the Ghanzi and Western State Lands ranches. Both these issues require much closer scrutiny. Also the feasibility of this road is likely to be effected by a project presently being studied for locating an abattoir or killing plant in the North.

Air Services

8.15 Under certain conditions the demand for transportation in Botswana is most economically met by air services. In particular, when demand is generated in a small area and is of a non-stop nature covering long distances, when alternative modes are expensive, and when people place a high value on their time, an air service can offer the cheapest alternative. A considerable part of the demand for transportation in Botswana demonstrates these characteristics, but is not at present sufficient to assure the complete viability of a

Figure 14 ZAMBEZI RIVER CROSSING



The Zambesi crossing for the proposed Nata-Kazungula Road.

national air line offering scheduled services. It has been estimated that the general transport demand will grow at a rate of not less than 10% per annum, and that air traffic will grow between 17% and 20% per annum, with the demand for scheduled services growing at a slightly faster rate than charter services.

8.16 In 1969 Botswana Airways Corporation Ltd. was formed, with 50% government participation. It currently provides scheduled flights to Lusaka and Johannesburg with a Fokker F.27 "Friendship", and daily links between Botswana's main centres with a 9-seater Britten-Norman "Islander". In terms of operating hours the Fokker "Friendship" is under-utilized. While the increased demand over the next five years will give greater utilization of aircraft seating capacity, and perhaps permit greater use of the Friendship on internal scheduled flights, it is unlikely to cause much increase in the total number of scheduled hours flown. The key to greater utilization of the aircraft, and therefore to the airline's viability as a whole, will be the extent to which the aircraft can be employed on both passenger and freight charter work. The mining company can be expected to make use of air-freight charters when construction begins at Selebi-Phikwe. In addition, tour operators will begin to sell package holidays in Botswana when the planned hotel and safari developments are fully under way. There is every reason to expect, therefore, that after initial losses the national airline will succeed in showing a fair return on capital invested.

8.17 The development of air services has created a need for improved airfields. There are over 50 landing-grounds in Botswana, most of which are only 3600ft. long with earth, grass, or sand surfaces. They are maintained by the roads branch of the Public Works Department and accommodate a limited number of light aircraft movements. With the emphasis on scheduled services to key points in Botswana, and the possibility of developing international links with surrounding countries, it has become necessary to improve a number of airfields. Consideration has been given to developing Gaborone, Maun, Selebi-Phikwe and Serondela (Kasane) airfields. Major capital expenditures would be required at Gaborone to establish a new airfield with facilities for short-haul jets. A feasibility study has been conducted and as a result it is probable that the project will be implemented in the mid 1970's; meanwhile the existing runway would have to be lengthened and the air terminal building enlarged.

8.18 Francistown, which is privately owned, is the most sophisticated airfield in Botswana, but would require to be lengthened by 3000 ft. to take short-haul jets. This work may be justified by 1975. Both Maun and Serondela (Kasane) airfields will serve the growing tourist trade. For optimum utilization Maun requires a bitumen runway in 1971/72 to accept aircraft which can fly package tourists directly from Johannesburg. The airfield for Kasane may require to be re-located as part of the general development of this resort. This should be done in 1973/74. Other airfields at major centres such as Lobatse, Mahalapye, Serowe, Palapye and Ghanzi will be maintained in good condition to enable their regular use by light aircraft of the Britten Norman "Islander" type.

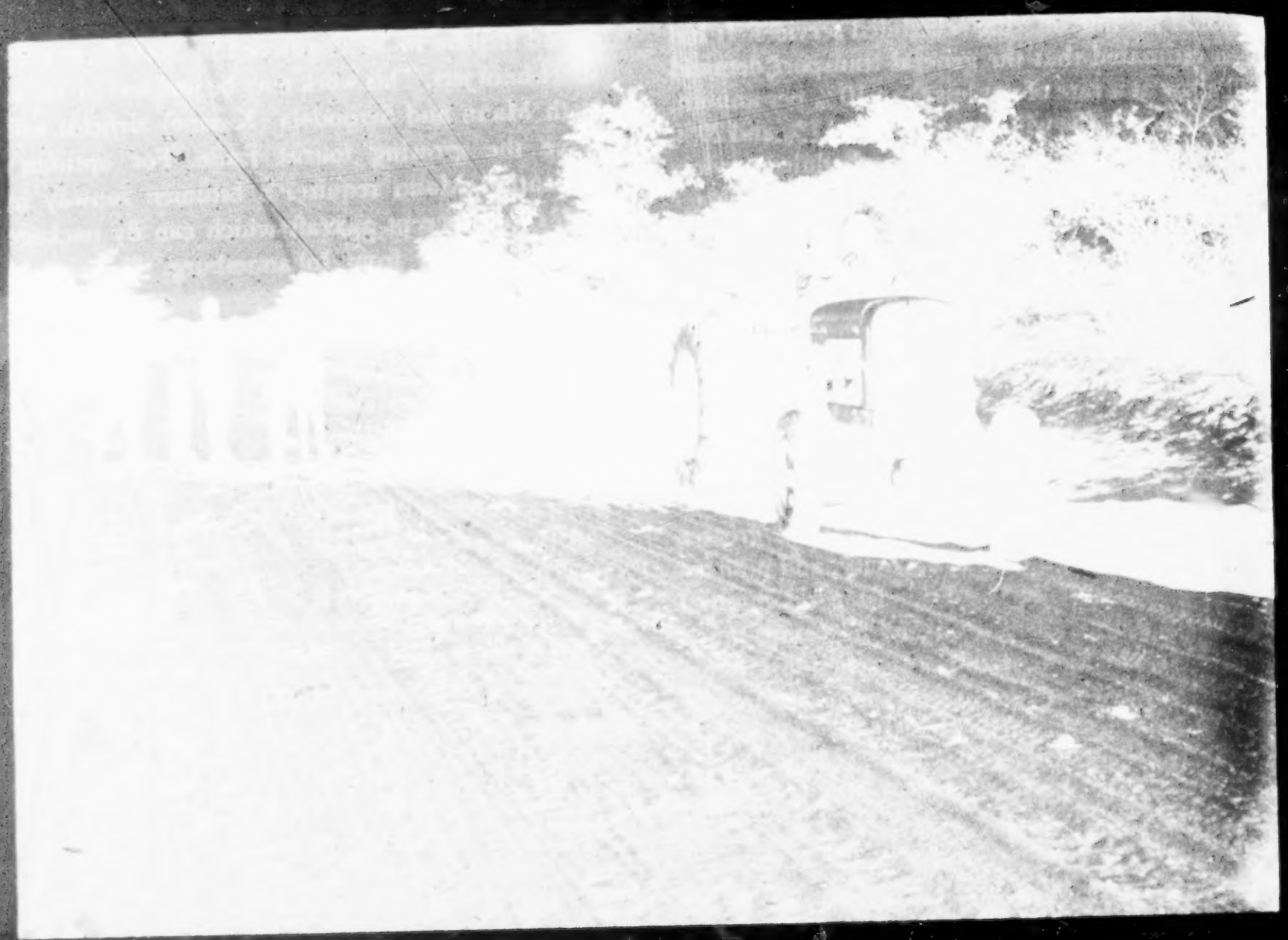
8.19 The Government established a Civil Aviation Branch in 1967. As a result an aeronautical fixed telecommunications network was set up, with Gaborone as the sub-centre for communication links to the Johannesburg and Salisbury Flight Information Centres. Other navigational aids include non-directional beacons at Gaborone, Francistown, Maun and Ghanzi, and point-to-point radio communication, with dual receivers and transmitters, between these four stations of the A.F.T.N. There is also V.H.F. communication and a basic fire-fighting service at Gaborone Airport. Thirteen aeronautical radio operators, after local training, are now in post and a control tower has been erected at Gaborone from which advisory flight information services are provided. During the Plan period these facilities will have to be increased and improved to meet the conditions imposed by the growth in aircraft movements, especially scheduled services.

8.20 Government recently arranged for an air services consultancy to investigate the particular problems of operating a national air-line in Botswana. The consultants, who were provided under the British Special Commonwealth African Assistance Plan, have been to Botswana and their report is expected in August 1970. On the basis of their recommendations Government will formulate its policy for the development of air services.

Meteorological Services

8.21 The Botswana Weather Bureau carries out the following functions:

(a) supplies vital weather information for flights of scheduled and unscheduled air services;
(b) makes area forecasts for press and radio;
(c) maintains full synoptic duty hours from 0500 to 2000 hours daily at six stations and from 0200 to 2100 hours daily at Gaborone;



A "bush drag" being pulled by a tractor to reduce corrugation.

Two aircraft of the Botswana Airways Corporation on the tarmac at Gaborone.

(d) provides climatological data, particularly weekly rainfall figures to scores of users and

(e) is responsible for the training of meteorological observers, the establishment of all types of weather, rainfall and agricultural stations and the training of agricultural demonstrators in basic meteorological duties. In 1970 three stations at Tshane, Shakawe, and Tshabong will extend their watch hours from 0200 to 2000 hours. These stations will be linked by radio directly with Gaborone.

8.22 The Weather Bureau is also responsible for the establishment of networks of rainfall, evaporation, and temperature stations for the use of hydrologists and veterinary research, and for assisting the Secondary Schools by establishing stations in connection with their science and geography courses.

8.23 A principal agricultural meteorological research station was established in 1968 at the Botswana Agricultural College and is being extended year by year. Three agro-meteorological substations have been built, and three more are planned. In conjunction with the U.N.D.P. Special Fund Project Surveys and Agricultural Production, five hydro-meteorological, and six hydro- and agro-meteorological stations have been built. In addition three networks of rainfall and evaporation stations have been established in important catchment areas, and three others will be established within two years. Over a hundred rain gauges are involved. Observers are being trained to man these stations.

8.24 Being short of upper levels of trained staff the Weather Bureau is still unable to carry out the full range of functions which are normally part of a meteorological service. In particular Botswana's major weather forecasts still come from Pretoria. Likewise forecasts for aviation purposes come from Jan Smuts Airport near Johannesburg. Also there is no basic meteorological research being done in Botswana. However, it is anticipated that during the Plan period better qualified candidates (i.e. matriculants) will seek careers in the weather Bureau. It is planned to seek WMO, UNDP Special Fund or VAP fellowships to send some of these candidates away for graduate training (B.SC. MET) and a larger number for a two year Diploma course at Nairobi or Cairo. By 1975 it is intended to have at least five graduates and 10 persons with Diplomas in the Met. service. The expertise will then be available for the Bureau to make its own detailed weather forecasts and do basic research into meteorological conditions as they relate to Botswana. Lower classes of Meteorological personnel, together with agricultural demonstrators, hydrological assistants, etc. will continue to receive on-the-job training supplemented by short courses at the Weather Bureau.

8.25 During the Plan period it is likely that the services of a number of experts will be required. Firstly, it is felt that in order to aid the Bureau in its initial efforts at forecasting, expert advice will be required in 1972 and 1973. Secondly, to advise the Bureau on the handling of increased volumes of data processing, an expert will be required by the beginning of 1971 provided the required equipment is available. It is hoped to be able to obtain VAP aid for these missions.

Power Supplies

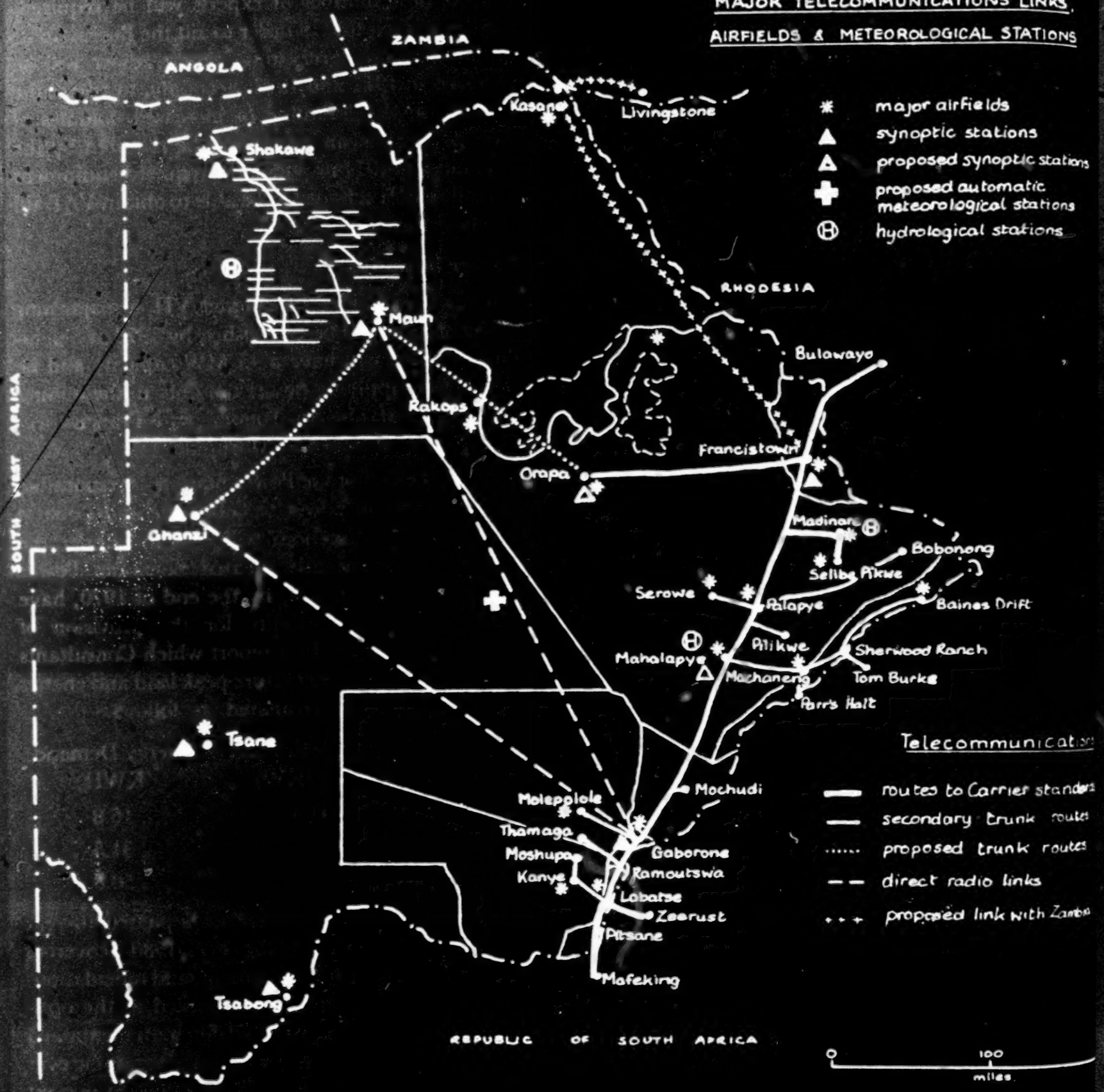
8.26 As explained in Chapter VII, a major new power station will be established by 1973 at Selebi-Phikwe. This will have a 45 MW capacity and be capable of supplying power not only to the mining township, but also to Tonota, and Francistown. It will use coal mined at Morupule.

8.27 The Gaborone Power Station, is responsible for the supply of power to Gaborone and Lobatse Townships. Its functions will now fall under the control of the recently created Botswana Power Corporation which will, by the end of 1970, have assumed full responsibility for the provision of power in Botswana. In a report which Consultants submitted in June 1969 future peak load and energy requirements were estimated as follows:–

	Peak Load (KW)	Energy Demand (KWH)
1970	4.4	16.8
1975	8.2	31.5
1980	13.2	50.8

In the same report was set out a phased 10-year Investment Programme for 1971-1980 (covering civil works, generating equipment, and reticulation) which the Consultants recommended as the optimum one to meet the projected demands mentioned above. The total capital cost of this programme over the 10 years is estimated at R3,231,000. At present a report is being prepared by the same consultants on a tariff structure which will enable the corporation to be self-financing.

8.28 In 1970/71 the installation of a 1080 KW Diesel Generator will be completed. This will provide the Station with adequate capacity to meet estimated demand until mid-1971. By then it is hoped that the first phase of the new investment programme will have been completed. This will involve the building of a new extension to the exsiting station and the installation of the first of four 2500KW diesel generators which the new


MAJOR TELECOMMUNICATIONS LINKS,
AIRFIELDS & METEOROLOGICAL STATIONS
major airfields
synoptic stations
proposed synoptic stations
proposed automatic meteorological stations
hydrological stations
ZAMBIA
ANGOLA
Kasane
Livingstone
Shakawe
Maun
RHODESIA
Bulawayo
Rakops
Francistown
Orapa
SOUTH WEST AFRICA
Ghanzi
Madinare
Bobonong
Selibe Phikwe
Serowe
Palapye
Baines Drift
Phikwe
Sherwood Ranch
Mahalapye
Machaneng
Tom Burke
Parr's Halt
Tsane
Mochudi
Molepolole
Thamaga
Gaborone
Moshupa
Ramoutswa
Kanye
Lobatse
Zeerust
Pitsane
Mafeking
Tsabong
REPUBLIC OF SOUTH AFRICA
Telecommunications
routes to Carrier standard
secondary trunk routes
proposed trunk routes
direct radio links
proposed link with Zambia
100
miles

extension is designed to house. Provided demand grows in accord with the above projections, the second generator will be installed in 1974, the third in 1977 and the fourth in 1979. Work will also proceed with extensions to the distribution system, to office accommodation and to housing. In 1970/71, provision for extensions to the distribution system will be R147,000 and for housing and office accommodation R10,000.

8.29 As mentioned in Chapter VIII a study is being made as to the feasibility of rationalizing the BMC and the Gaborone power generating systems. If the results of this study indicate that there are economic benefits in integrating the two systems, modifications will probably have to be made to the proposed investment plans for the next 10 years. Indications are that this might entail bringing forward the investment programme one or two years.

8.30 At Francistown the installed power capacity will permit safe peak loadings of 600 KW. Present peak demand is in the region of 300 KW. By early 1973 power will be available from the Selebi-Pikwe Power Station. There would appear to be sufficient capacity to preclude the need for further investment. However, the increase in demand is expected to rise at an unusually high rate as a result of

a the rapid increase in commercial activity,

b the present suppressed demand of household consumers, which will be released when the heavy cross subsidization of water tariffs by power tariffs is eliminated.

The 600 KW safe capacity of the present power station will be utilized, once Shashe power is available, as a stand-by system, and possibly as a means of cutting the peak demands on the Selebi-Pikwe Power Station. It is not clear yet whether a further investment in generating capacity for this purpose will be economically justified. When the design of the Selebi-Pikwe Power Station has been completed and reasonable estimates can be made of the tariffs that will be charged, a study of this possibility will be undertaken. If this indicates that no further investment is justified over the whole period 1970 to 1980 it will be adyisable to ensure that peak demand between 1970 and 1973 does not rise above 600 KW by either installing circuit breakers which limit individual demands, or by tariff adjustment, or by both means.

8.31 Public power supplies are now available at Palapye, Mahalapye, and Maun. In the case of the first two places the power is purchased from Rhodesia Railways. It is intended to provide supplies for other main population centres during the Plan period. This will be done when market surveys show that the costs of the investment financed by commercial loan can be recovered. Certain problems of administration have reduced the viability of the existing schemes, and these problems will have to be overcome before further progress is made. The provisional phasing is as follows:

1971/72	Serowe
1972/73	Kanye
1973/74	Molepolole

Finally it should be mentioned that considerable coal reserves in Eastern Botswana are a potential source of fuel for a proposed major power station capable of supplying a national grid. The export of power might also be considered. Extensive investigations need to be made and these will be carried out during the Plan period.

Surveys and Lands

8.32 Preparation of detailed maps and other forms of survey are a basic prerequisite for the formulation and successful implementation of most projects. The Government of Botswana is therefore determined to see that survey and mapping are stepped up significantly so that development is not impeded due to the absence of maps. Sufficient provision has been made in this Plan for staff and equipment for the Government's Department of Surveys and Lands to fulfil its responsibilities. Surveyors qualified to perform cadastral surveys are, however, very scarce and heavy reliance will have to be placed upon the services of private surveyors.

8.33 Developments during the past two years have demonstrated the need for a considerable accleration of the rate at which the Department is providing certain services. The Department is now divided into the following divisions which clearly reflect the scope of its activities and responsibilities:

(i) Cadastral
(ii) Cartographic and Topographical
(iii) Engineering Surveys and Training
(iii) Geodetic
(iv) Engineering Surveys and Training
(v) Town and Country Planning

It is anticipated that by the end of 1970 sufficient residential, commercial and industrial plots will have been provided at Gaborone for the next five years. In addition residential and commercial plots will have been provided at Kasane, industrial plots at Francistown and a full range of residential, commercial and industrial plots at Selebi-Pikwe for the first phase of the Township development there.

8.34 It is clear that the development of mineral resources in the north will result in considerable expansion of Francistown and in addition to an

already established demand for high density housing sites, there will within the next two or three years be considerable demand for both low and medium density residential sites and commercial and industrial sites. It is proposed that new housing sites and a new commercial area should be provided at an early date as part of a long term expansion plan for Francistown to the south of the Tati River. This work coupled with normal expansion at Gaborone, Lobatse and elsewhere will necessitate the employment of private surveyors during the plan period 1970/75.

8.35 Projects for rural land development involving cadastral or other land surveys should normally include financial provision for such surveys. In practice however, it is found that the Department is continually faced with a demand for surveys of this kind for which no specific financial provision has been made by the initiating Ministry. To anticipate these omissions and to provide for this type of work it is proposed that in the future financial provision should be made in the normal budget for ad hoc rural cadastral surveys not provided for elsewhere. An example of this type of survey is the demarcation of the land required for the Shashi Dam, Selebi-Phikwe Township, the Aerodrome at Selebi and the Mopipi land for water storage. The Ministries of Agriculture, Works and Communication and Local Government and Lands will continue to generate an increasing volume of rural cadastral surveys. The Tribal Land Law will also stimulate interest in individual land ownership to an extent which is difficult to foresee, but the general effect will undoubtedly be a steadily rising demand for cadastral surveys in the rural areas.

8.36 The events of the last two years have underlined dramatically the inadequacy of available medium scale topographical mapping and the rate at which such mapping is being provided in hitherto unmapped areas. This inadequacy has been clearly revealed in the process of studying the feasibility of the Shashi Complex Project and the planning of the associated infrstructural facilities. The fundamental mapping of Botswana on the basic scales of 1:50,000 and 1:250,000 is a costly, complex and time consuming operation which can never be supplied as part of a particular project, but should be available for the whole country in advance of any possible development. The 1:50,000 topographical map series for the Eastern Water Shed, which would have proved ideal as a basis for the study of the Shashi Complex Project and the planning of all associated physical development was begun in 1963 and by 1969 extended from Ramatlabama to Mahalapye. At the present rate it will be another five years before the area between Mahalapye and Francistown is covered, by which time the Shashe Complex will be an established physical fact, planned, designed and built at great additional cost and delay due to the inadequacy of the basic mapping. Similar difficulties are being experienced in investigating and formulating plans for supplying Orapa with sufficient water; suitable maps covering the area from Orapa to Maun are non-existent.

8.37 Mapping of this kind has hitherto been supplied by the U.K. Directorate of Overseas Surveys and heavy reliance will continue to be placed upon this source of mapping. There is however an urgent need to supplement the existing mapping capability by employing contractors to fill in numerous and glaring gaps which exist, and to speed up the rate of work so that suitable basic mapping is available covering the whole country. The plan objective is to complete the 1:250,000 topographical map series for the whole country by 1975, except where other adequate maps will be available, and to provide 1:50,000 maps in key development areas. To a certain, but relatively insignificant, extent the U.K. Directorate of Overseas mapping programme has been affected by requests which have been made for assistance in other directions, for example, precise levelling and horizontal control. To ensure that the current Directorate of Overseas mapping programme suffers the minimum amount of disruption, funds will be provided for geodetic operations for precise levelling and horizontal control to be undertaken either by contractors or departmentally. It is anticipated that the current mapping programme for the 1:50,000 eastern series and the Okavango Swamp picto-mapping will be completed by the Directorate in the Plan period. Large gaps would still be left in various parts of Botswana which it is proposed should be closed by employing contractors to undertake 1:50,000 and 1:250,000 mapping.

8.38 Under Town and General Mapping Scheme SG03 considerable progress has been made since 1967 and all major towns and villages have been mapped or will have been mapped by the end of 1969/70 including the site of the Selebi-Phikwe Township. In addition the B8 Photogrammetric Plotter, purchased in 1968, is now supplementing the Department's large scale mapping capability. To cope, therefore with routine large scale mapping requirements and necessary revision of existing large scale mapping, it is considered that the Town and General Mapping Project SG03 should remain unchanged until 1975 subject to the position being reviewed two years hence.

8.39 Geodetic work consists primarily of the provision of a network of permanently established horizontal and vertical control points throughout Botswana as the basis for all other mapping, cadastral and engineering surveys, and engineer

and hydrological investigations. In this, the U.K. Directorate of Overseas Surveys has given considerable assistance over the years, but the extent of its contribution is limited by certain factors. Firstly, it provides this type of control as part of its primary mapping function and it is normally not its policy to undertake work which does not form part of a mapping project. Secondly, its contribution is limited by the fact that Botswana is one of the many countries in the Commonwealth dependent on its aid.

8.40 If, as is intended, the mapping programme is stepped up significantly and if the rate of development in Botswana continues to increase as at present, it is essential that the geodetic activities of the Department of Surveys and Lands remain in step. Geodetic work, except for levelling is normally regarded as being essentially a departmental responsibility. It is a branch of survey to which commercially minded private firms are not properly geared. In order therefore to cope with its geodetic responsibilities the Department will require funds for the purchase of additional equipment, for the hire of computer services for the adjustment of large networks of triangulation or trilateration, and also for letting contracts for primary levelling. This in turn will relieve the Directorate of Overseas of such responsibilities as it has at present for horizontal and vertical control surveys and enable it to concentrate entirely on mapping.

8.41 The Department will continue to break down the existing primary network to secondary and tertiary densities, and supervise the primary and secondary contract levelling. In Ngamiland the Department is committed to the provision of a precise level network for the hydrological investigations under the U.N.D.P. (S.F.) Project and the use of contract levellers to supplement departmental effort will speed up the work to a more acceptable rate, and release Directorate of Overseas supervisory staff for mapping work elsewhere. The Department will also continue to provide a limited capability for routine engineering surveys, assisting where possible with pipeline, power line, sewerage, contour and other surveys of an engineering nature.

8.42 Considerable difficulty is being experienced in the training of local survey technicians due to educational problems. In normal circumstances a matriculation level of education, with mathematics and physics would be considered essential for a trainee in survey. It has not been possible during the last two years to attract local candidates with these qualifications. The wastage in attempting to train people with lower education is so considerable that the attempt must be considered very uneconomical. The present expansion of secondary education will solve this problem in the long run. In the meantime, therefore, whilst waiting for better basically educated candidates, only a minimal training capacity will be maintained, at least in so far as formal training is concerned. Meanwhile the Department will continue to encourage interested young men to join the Department with a view to on the job training.

8.43 The physical planning of townships and villages is essential if the construction resulting from the implementation of projects is to lead to orderly development and hence to least cost solutions in the provision of services. Following the report of a Town Planning Adviser a division of the Department has been set up under a Senior Planning Officer who will be assisted by two associate experts. It is anticipated nevertheless that the total volume of Town and Country planning work will remain beyond the capacity of this relatively small team necessitating the continued use of outside consultancy services.

Posts and Telecommunications

8.44 Distances between population centres in Botswana are great; good telecommunications are therefore an essential service which assists development to an extent that easily justifies the cost. During the Plan period it is proposed to expand the telecommunications system to enable it to meet the anticipated demand efficiently. The growth of the telephone revenues gives some indication of the increasing importance of this mode of communication:

Telephone Revenues	
1966/67	R195,500
1967/68	R252,000
1968/69	R278,000
1969/70	R395,000 (Est.)

Growth slowed between 1967/68 and 1968/69. One of the main reasons was the extent to which the telephone system was overloaded. In 1968/69 the capacity of main trunk routes was raised by 400%. The increased revenue estimated for 1969/70 is a direct result of the increase in capacity which has tapped latent demand.

8.45 The programme of investment which has been planned for telecommunications is to be financed from commercial loan funds. The new revenue attributable to new investment in telecommunications is such that in every year new revenue will be greater than loan repayments and interest charges. This is largely due to the fact that there has been, in commercial terms, considerable under-investment in past years. While the demand for telecommunication services is not expected to grow at a rate faster than 12% to 15% per annum the growth in capital invested should be nearer 20%

per annum for a number of years in order to make up the shortfall. By 1977 the Department will be making an estimated operating surplus of R250,000 per annum after meeting all loan charges. Over and above the commercial viability of the planned investment the development implications must be considered. It is imperative, for a balanced fiscal policy, that some of Government's total investments should produce direct returns; it is also necessary for some projects to show short-term returns to offset those with long-term returns. Both these requirements are met by carefully appraised telecommunications investment.

8.46 The first phase of investment in Carrier Transmission Circuits has almost been completed and plans are in hand for a second round to be undertaken in 1971/74. This has meant greater efficiency in the use of existing equipment and permitted the introduction of direct dialling between main centres.

8.47 At present there are 1490 exchange lines operating in the three centres, Gaborone, Francistown, and Lobatse. It is intended to purchase extensions of 900 lines total capacity for these centres at the beginning of the Plan period. By 1974/75 it will be necessary to add a further 800 lines if demand rises as projected. In the districts exchanges are at present operated on a manual basis. It is intended to replace the exchanges at Mahalapye, Palapye, and Serowe with automatic exchanges. This will require 700 lines. The mining centre at Orapa requires a 200 line exchange and the centre at Selebi-Phikwe a 300 line exchange. A further 200 lines will be required at Selebi-Pikwe before 1975. Finally, Maun, will be given a 200 line automatic exchange in 1972, and Kanye, Mochudi, and Molepolole will each require an automatic exchange of 100 lines by 1974, or before. If plans are completed, by 1975 the existing 1490 automatic, and 540 manual exchange lines will have become 5100 automatic lines and 300 manual lines which should permit approximately 8500 telephone instruments to be installed throughout the country. Underground distribution systems will be required to complement the investment in exchange lines. Government has entered into a purchase agreement which will enable it to draw cable as needed from suppliers.

8.48 Ghanzi/Gaborone, and Maun/Gaborone radio telephone links have been installed, and a Radio Call Service has been instituted which enables farmers and safari companies to attach themselves to the telephone network. A major U.H.F. radio link will be superimposed upon the main trunk network in 1973/74 offering 60 channels between Lobatse, Gaborone, Serowe, Mahalapye, Selebi-Phikwe, and Francistown. This will be capable of extension and is much more economic to install and operate than a network based on land lines. In the meantime a land line has been installed between Francistown and Orapa. It is planned to extend this line to Maun and to Selebi-Pikwe by 1970/71.

8.49 The demand for telex services has grown very quickly in the past three years. At present there are thirteen teleprinters in operation in Botswana. They work from exchanges in South Africa and Rhodesia; considerable revenues are thereby lost to the Department, and the expansion of the service is severely limited. Firm applications to the department show that 25 lines will be filled on the exchange to be installed in 1970/71 and there are sufficient further applications to justify the installation of a 25 line extension in 1971/72. This service is of importance to the developing mining and business sector, and will contribute significantly to the revenues of the Department.

8.50 During the past five years a major programme of Post Office expansion has been completed. However a small number of post offices will be built in rural areas during the Plan period and in particular, at Moeding and at Hukuntsi during 1971/72. From 1971/72 onwards buildings will be required to house about half of the new exchanges which it will not be possible to install in existing buildings.

Housing

8.51 In spite of its small population, its low population density and the primarily agricultural and pastoral nature of its economy, Botswana is already faced with a serious housing problem. This is true even though traditional housing – constructed from local materials – is inexpensive, generally well suited to the climate and reasonably durable.

8.52 One aspect of the problem, that of civil service housing, is largely a legacy from the pre-independence era. Due to the heavy reliance upon non-local officers the need to transfer government personnel from station to station at frequent intervals in the past, it was necessary for Government to assume full responsibility for the provision of suitable housing for public servants. Loans were raised from the British Exchequer for housing and essential site services, and a large part of public debt liabilities of the Botswana Government are related to housing loans. Rents payable by officers were (and still are) subsidised by the Government. With the expansion of the public sector during the past few years and the creation of a new capital at Gaborone, the Botswana Government has been forced to devote an excessively large proportion of the development funds available to civil service

housing; yet, insufficient housing was available to enable all vacant posts to be filled.

8.53 The Government, confronted by enormous and competing demands for funds to mount projects directly affecting economic growth, cannot persist with this diversion of its resources into the creation of non-productive – albeit socially indispensable – assets. Circumstances have changed: a high degree of mobility in the public service is no longer essential; the specialisation of administrative and executive functions in the Government will result in a growing nucleus of local officers permanently posted to the main administrative centres; and means may be found to attract those expatriate officers required other than by the subsidisation of house rents.

8.54 The lack of modern housing in the three main townships, and in Gaborone in particular, has acted as a brake on commercial and industrial development in these centres. Potential investors have been deterred by the necessity of committing funds for employee housing. Whereas it is hoped that a building society will be established to service the demands for higher income housing, it may be necessary for the housing authority to act against this bottleneck if its funds permit.

8.55 During 1970, a National Housing Corporation will be formed to perform the following functions: (1) take over and manage Government pool housing; (2) assess housing needs throughout Botswana at all levels, determine and advise on priorities and prepare a housing programme; (3) raise loan money to fund the housing programme; (4) be a self-accounting body and, taking one year with another, show a surplus of revenue over expenditure; (5) build houses for sale or rental on an economic basis; (6) administer a housing programme on an agency basis for Government and the Town Councils; (7) encourage the creation of a free market in housing; (8) co-operate with and maintain close liaison with Government, Town and District Councils and other representative bodies on housing matters. Finance for the Corporation will be derived from two sources. First it will receive a development loan from Government to establish itself. Second the Corporation will take over Government housing of Civil Servants in Francistown, Gaborone, and Lobatse. This housing will provide the security which will enable the Corporation to raise loan money from internal and external sources to fund new housing projects, and the economic rent accruing from this housing will provide revenue to (1) repay Government for the houses taken over on an annuity basis for the initial loan granted by Government; (2) service its other loans and allow for the creation of a reserve fund against contingencies.

8.56 Despite the creation of Housing Corporation, Government will have to continue to assume responsibility for the provision of institutional housing. Development projects which have as their aim the establishment of new public institutions (e.g. hospitals, clinics, educational and training institutions, prisons, maintenance depots, police posts) will make provision for the costs of the housing required for their implementation. This is particularly necessary in the case of projects which involve the creation of facilities in areas where no other housing is available or where the Housing Corporation would not be prepared to advance housing funds.

8.57 There is also general need in Botswana for housing in the private sector. The steady increase in employment in the urban centres where job opportunities have increased in step with the increase in industry and commerce, as well as in Government has not been accompanied by a concomitant expansion in housing over the past five years. At present it is estimated that there are 14,000 people in Francistown, 3000 in Gaborone, and 1,500 in Lobatse, who require to be re-housed. From 1970 to 1975, Councils will be provided with R2½m for investment in low-cost housing. In 1970/71 R500,000 will be spent on building about 518 of these houses in Gaborone. In subsequent years low-cost housing schemes will be implemented in Francistown and Lobatse. Finance for this low-cost housing will be raised by Government and on-lent to the Town Councils. The Housing Corporation, once established, will administer the low-cost housing programme on an agency basis for Government and the Town Councils. By the end of 1970 a master Physical Development Plan for Francistown will be completed, after which larger sums can be utilised in solving that township's problems which are more extensive and serious than elsewhere in Botswana. In the Francistown region private developers are also interested in the provision of low-cost housing and so long as they comply with Government regulations they will have the full support of Government.

8.58 In order to keep costs as low as possible and therefore minimize subsidization, Government's low-cost housing policy, will centre around the provision of serviced sites. Under this programme people in low income groups will be encouraged to build their own homes using their own labour with financial assistance from Government. Plots for site and service schemes have been laid out in Gaborone and may be provided in Francistown and Lobatse for suitable applicants to build their own houses to plans approved by the Township Authority in accordance with Building Regulations in force in the townships. At present it is envisaged that

Government will be the agency implementing these schemes. It will provide the minimum essential services, enable successful applicants for plots to acquire building materials and through the Community Development Department supervise individual constructions, besides providing the necessary administrative expertise. Town Councils will however be expected to take over the completed schemes and by means of rentals collected, repay Government for the expenditure involved.

8.59 A different type of problem exists in the traditional towns. A growing number of individuals desiring to construct modern housing are unable to raise loan finance due to their inability to own land in these centres. Co-operative and aided self-help housing schemes would assist in overcoming these tenure problems, and will be considered by Government.

8.60 It is anticipated that a building society will shortly be established in Botswana. The society will encourage home ownership by providing loans for house purchase. Initially capital will be required from outside Botswana, but the building society would hope to mobilise local savings for re-lending for house purchase.

Geological Survey

8.61 The Geological Survey is concerned primarily with two matters of vital importance for assessment of mineral resources and the development of underground water supplies. A necessary preliminary to the attainment of these objectives is a study of the rocks and the geological structure over the whole of the country. Regional geological mapping followed by the production of maps and reports describing the geology of Botswana is thus the prime function of the Geological Survey Department. Mining and prospecting organisations look to Government's Geological Survey to provide basic information on which to base their plans for investment of money in prospecting or detailed examination of mineral deposits. They only carry out geological mapping as a matter of expediency or to elaborate the groundwork with rather limited, though specific, objectives in view. Such work is no substitute for the systematic, comprehensive geological mapping carried out by an Official Government Geological Survey. The more geological information available and the more advanced the regional geological mapping programme, the more likely is interest in a country's mineral potential to be stimulated.

8.62 Because of the mantle of superficial deposits blanketing the older rocks, only about 52 quarter degree sheet areas in Botswana lend themselves to geological mapping by conventional methods. Knowledge of the geology and structure in the remaining area has to be determined in different ways. A systematic programme of regional reconnaissance geological mapping on a scale of 1:125,000 was commenced in 1955/56 and since that date reconnaissance mapping has been completed on 38 quarter degree sheet areas. Knowledge of the basic geology and structure over the remainder of the country has also reached an advanced stage. A number of publications describing various aspects of the geology of Botswana has been issued. Over and above these a wealth of geological information has been accumulated and is available for study at the Geological Survey headquarters at Lobatse.

8.63 This basic work is supplemented by mineral survey programmes which include field and laboratory examination of potential mineral deposits; prospecting for new mineral occurrences; rendering assistance to prospecting organisations and operating mines; and wherever possible furthering interest in Botswana's mineral potential. Modern ground geophysical exploration methods are employed in this work. As a result of the publication of results of these basic programmes, a number of State Grants of prospecting rights has been issued in the past and 35 grants of special prospecting rights are currently in force. Other applications are under consideration. One mining lease is in force and three other applications for mining rights are being negotiated.

8.64 Besides these main activities the Geological Survey undertakes special investigations where geological advice is required, such as in certain engineering problems, and also renders assistance to other Government Departments whenever required to do so. Special geological and geophysical research work is also undertaken where it is needed for a better understanding of the basic geology and structure of Botswana.

8.65 The Director of Geological Survey is Mining Commissioner for Botswana and the Department includes a Government Mining Engineer's division. Apart from specific functions the Geological Survey perform in relation to prospecting and mining this division is responsible for the inspection of mines and machinery, and the implementation of explosives regulations. In the exercise of its dual functions as a Geological Survey and Mining Commissioner's office, the Department is responsible to Government for ensuring that mining company prospecting operations in Botswana are carried out energetically and efficiently with due regard to the provisions of the Mines and Minerals Act in force in the country.

8.66 The important role of the Geological Survey in the development of the economy is clearly recognised by Government. During the Plan period the department will be strengthened especially on the mining side (see Project GS01) so that adequate assistance and supervision will be available in respect of the prospective mining developments described in Chapter VII.

Chapter IX – Social Infrastructure

A. MANPOWER

9.1 Estimates of Botswana's present manpower resources are derived from two principal sources: (i) Population Census of 1964 and (ii) the 1967/68 Labour Census. The 1970 population is estimated at 648,000; it is projected to grow to 750,000 by 1975 and to reach a million before 2000. Of the present population approximately one half are either under 15 or over 60 years old and, therefore, not fully effective participants in the labour force. Some 42% of the population alone are under 15. The 1964 census showed that the distribution of workers between sectors was as follows:

Activity	%
Agriculture, Forestry, Hunting, Fishing	90.800
Mining and Quarrying	0.790
Manufacturing	0.965
Construction	1.078
Electricity and Water	0.048
Commerce	0.984
Transport and Communications	0.923
Services	3.908
Other	0.504

9.2 The 1967/68 Labour Census was conducted by postal questionnaire and covered persons in all sectors of the economy except traditional agriculture, and small scale employers who required no licence to operate. The numbers in wage employment are shown in Table 9.1.

Table 9.1 **Numbers Employed by Sector**

	Number Employed	%
Extractive Industries	8,485	30.1
Manufacturing	1,550	5.5
Construction	1,566	5.6
Electricity and Water	187	0.7
Trade and Hotels	5,175	18.4
Communications	1,474	5.2
Financial Institutions	134	0.5
Public Administration	5,970	21.2
Services	3,607	12.8
GRAND TOTAL	28,148	100.0

Source: Report of the 1967/68 Labour Census of Botswana (C.S.O.)

9.3 Of the 28,148 in salaried employment, 25,345 were citizens of Botswana. The remainder were expatriates mainly in the more skilled occupations. Data on employment in the agricultural sector was obtained in the 1967/68 Agricultural Sample Survey. It was found that there were 200,261 workers in agriculture of whom 7,671 were employed on freehold farms.

9.4 The present stock of educated manpower is illustrated by the education profile in 1969. This reveals that the population has a very low level of basic education although there has been a marked improvement recently. In the past five years, for example, the percentage of those in the age group 15 to 19 who achieved elementary literacy (i.e. 4 years of education) increased from 29% to 50%. Over 80% of those aged 10 to 14 years are in fact at school in 1970. The education profile indicates that the proportion of the population with some secondary education is extremely small. In short Botswana's labour force is largely untrained and uneducated. Since independence a remarkable increase in secondary and higher education enrolments has been achieved and this rapid expansion will be continued during the Plan period, as described below.

9.5 The present number of jobs requiring Category I manpower (i.e. persons with degree or diploma qualifications) is about 680, of which less than 10% are occupied by Botswana citizens. The number of jobs requiring Category II manpower (i.e. persons with a minimum of five years secondary education) is estimated to be just over 2,000 of which less than one quarter are filled by Botswana citizens. There are some 6,000 jobs requiring Category III manpower (i.e. persons with three years of secondary education); many of these posts are currently occupied by persons with only primary education – a most unsatisfactory situation.

9.6 The demand for skilled manpower will be related to the expansion of the economy. In making projections for this Plan, it has been assumed that the stock of high level manpower will grow in the long term *parri passu* with the real increase in gross domestic product. For the period 1970/90 the target average growth rate employed is 8%, with growth occurring faster in the early years and slower in the later years. In addition to the demand due to economic growth there will also be a demand for skilled manpower due to (i) retirement, death, etc., estimated at 4% of the stock each year and (ii) Government's policy of localisation.

9.7 Government's declared policy of localisation is to achieve complete national manpower self-sufficiency by the 1990's. Category II manpower will be fully localised in ten to fifteen years. This will be accompanied by a steady upgrading of the

quality of Category III manpower. To achieve these targets, for every 100 pupils entering Form I, approximately 50 will leave to enter the labour force or vocational training before reaching Form IV, 37 after completing a full secondary education and about 13 will proceed to higher education. An average participation rate of educated individuals in the labour force of 80% has been assumed.

9.8 Table 9.2 illustrates the projected demand and supply picture for high-level manpower based on the assumptions detailed above. In the case of Category I manpower, entrants to Form I now will not become available until after 1980, whilst in the case of Category II manpower expansion of secondary school enrolment now will increase the supply by 1976. The slight over-supply apparent in later years will enable some upgrading of Category II jobs to Category I and of Category III jobs to Category II. This would be highly desirable, since in categorising jobs the barest minimum educational qualifications were used.

Table 9.2
Demand and Supply of High Level Manpower

Category I	1970	1975	1980	1990
Total Stock	683	1,004	1,475	3,184
Annual Total Demand	191	267	352	452
Annual Supply of Locals	30	52	150	472

Category II	1970	1975	1980
Total Stock	2,089	3,068	4,507
Annual Total Demand	496	652	705
Annual Supply of Locals	122	344	755

Source: Ministry of Development Planning 1970.

9.9 These aggregate high level manpower projections can be regarded as no more than crude indicators on which to base the immediate expansion of secondary and higher education. They will be subject to continual review and improvement as better basic statistical data becomes available. In particular the proposed 1971 Population Census will provide a new estimate of the total stock of high level manpower by category. The Census, when combined with a new labour force survey by establishments, will also provide a breakdown of the country's manpower by occupation – information which is vital for the planning of vocational training at all levels, and which at present is not available.

9.10 Projections of aggregate demand for high level manpower given above permit the overall expansion of secondary and higher education enrolments to be planned. In order to indicate the type of education required during 1970/80, a tentative estimate of the relative demand for different skills has been made, derived mainly from the occupational structure estimated for Zambia. This assumes, as a reasonable first approximation, that the structure of Botswana's economy will tend to that of Zambia during the next ten year period; both economies (i.e. Zambia in 1970 compared to Botswana in 1980) will be characterised by two dominant sectors – mining and agriculture – and will have a small but significant industrial sector. The figures have been adjusted to take into account the importance of livestock in Botswana. The results are shown in Table 9.3; it is to be noted that 25% of Category I manpower is projected as engaged in teaching, 23% in executive and administrative work, whilst approximately 35% will be in jobs requiring a mathematics and science education. This indicates that about half our secondary school and university students should concentrate on mathematics and science subjects.

Table 9.3
Target Occupational Distribution of New Category I Manpower Produced 1970/80

Occupation	%	*Total Number*
Architects & Quantity Surveyors	1.29	9
Civil Engineers	3.91	29
Electrical & Mechanical Engineers	3.26	24
Chemical, Metallurgical & Mining Engineers & Mining Technicians	3.70	27
Surveyors	1.43	10
Chemists	1.30	10
Physical & Agricultural Scientists and Agronomists	3.57	26
Animal Scientists	4.01	29
Physicians and Dentists	3.13	23
Other Medical Workers	5.19	38
Teachers and Training Instructors	25.70	208
Jurists	1.82	13
Artists and Writers	0.34	2
Accountants	1.99	15
Social Workers and Librarians	2.64	20
Personnel Officers	0.65	5
Draughtsmen	0.51	4
Other Technicians	4.79	35
Administrative Workers	15.94	117
Executive Workers	7.39	54
Sales	3.50	26
Agriculture	3.27	24
Transport & Communications	0.05	1
Service	0.44	3
	100.00	732

Source: Ministry of Development Planning 1969.

9.11 Estimates of likely demand for different skills at the artisan and technician level are as yet quite inadequate. The Government is fully aware of the urgent need to focus its attention on this problem; during 1970 the necessary studies will be made to obtain adequate projections for the planning of vocational training. Tentative estimates have already been made for the construction industry where the demand for skilled manpower is certain to be very significant during the Plan period, and the shortages particularly acute. The demand for the main skills during 1970/75, for which training is immediately required, is projected to be:

Carpenters	550
Bricklayers	570
Plasterers	510
Scaffolders	50
Electricians	80
Painters	310
Plumbers	80

9.12 To ensure the production of the right mix of high level manpower the Central Bursaries Committee has been reorganised. The award of bursaries for higher education will be geared specifically to meeting the manpower demands identified in Table 9.3 and will be made conditional on the students following approved courses; students who receive Government bursaries must undertake to return to work in Botswana. A progressive means test will be applied. Post graduate awards are only made after students have satisfactorily completed a period of work in Botswana after their first degree. These awards must of necessity be even more closely related to the country's needs because of their specialised nature.

B. EDUCATION

Primary Education

9.13 The trends in primary education in Botswana are illustrated in Table 9.4:

Table 9.4 Trends in Primary Education 1962-69

	No. of Schools	*No. of Teachers*	*No. of Pupils*	*Teacher Pupil Ratio*
1962	235	1,305	46,536	1:36
1964	241	1,364	62,839	1:46
1966	251	1,673	71,546	1:43
1968	257	1,791	78,963	1:44
1969	280	2,037	82,214	1:40

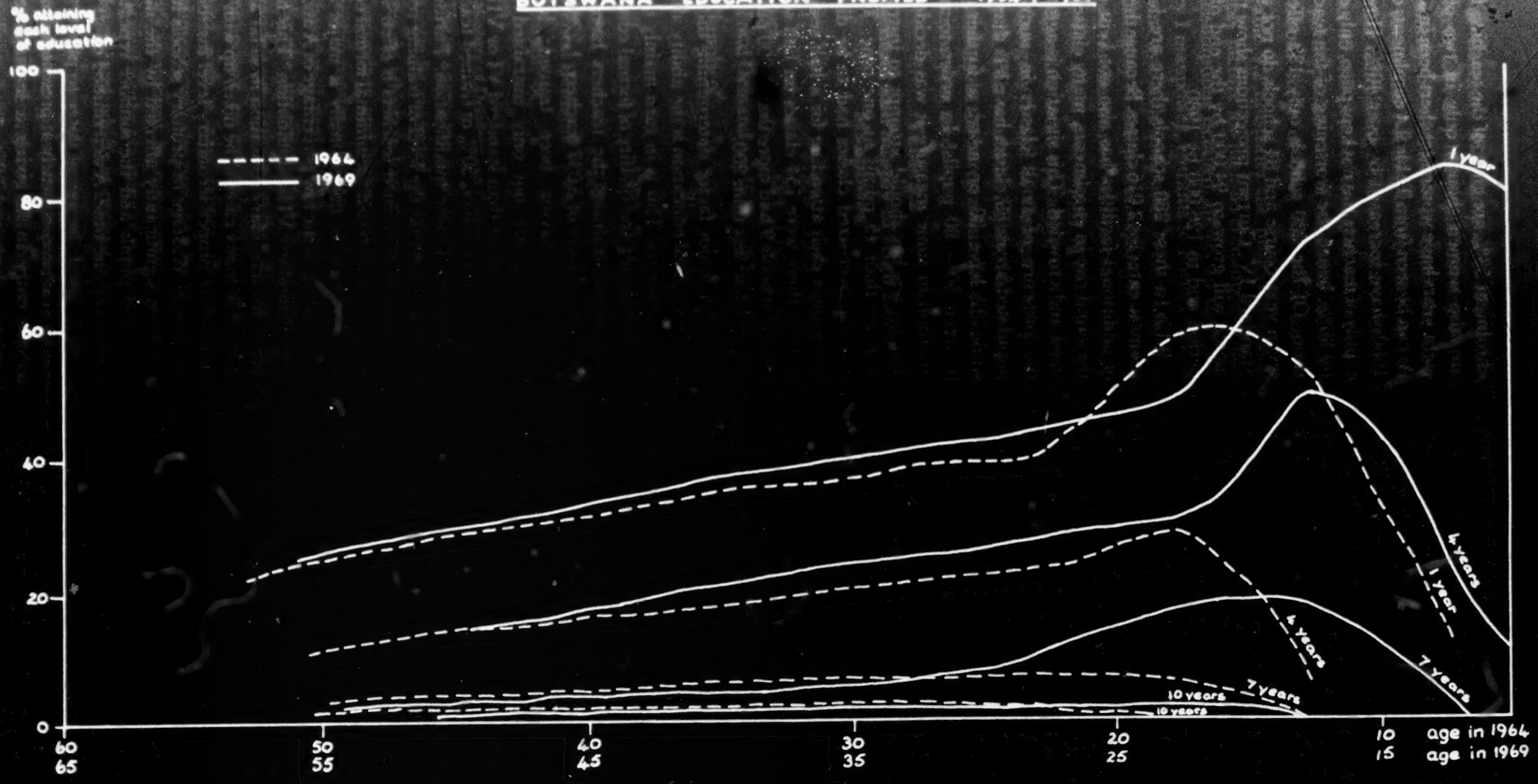
Source: Ministry of Education, 1969.

9.14 In the past more girls than boys have been enrolled in primary school; of the 1969 total enrolment 53% are girls; of the teaching force 53% are also women though only in two of the past eight years have women teachers been in a majority. As can be seen from Table 9.4 enrolments during the 1960s have increased by over 40%. However, the supply of teachers has not kept pace, only expanding by 36%, hence the worsening of the teacher:pupil ratio. Of the 280 schools only 130 offer the full seven year course and 84 schools do not go beyond Standard IV. Current projections show that enrolments will grow to 94,000 by the end of the Plan period and to 126,000 by 1980.

9.15 In these 280 schools there are 1,301 classrooms to cater for 2,016 classes. Because the provision of additional facilities has also not kept pace with the rapid rise in enrolments, many classes are oversized and crowded. This situation is aggravated by the presence of small classes in many sparsely populated areas. 89 classes have less than 20 pupils while 32 have 80 or more, a further 349 have between 50 – 80 pupils. In order to relieve the situation in some measure it was decided in 1967 that no teacher should attempt to instruct a class of more than 45 pupils at one time. This meant that the over-sized classes had to be divided into two groups each attending for a half session. In all in 1969 there were 154 classes on half sessions. Of the 280 schools 9 had more than 1,000 pupils on the roll, 141 had less than 200.

9.16 A major factor determining the quality of primary school education is the ability and training of the teachers. This is in turn mainly determined by the amount and quality of formal education and professional training the teachers have received. Of the total force of 2,037 teachers, 1,228 (60%) are classified as having been trained; however, a further 37% are not only untrained but have received no more than standard VI or VII primary education themselves. 50% of trained teachers hold the Primary Lower qualification. Furthermore it must be noted that the level of training received by the category of trained teachers is often very rudimentary and is based on minimal formal education. Poor teaching is undoubtedly a major factor in contributing to the low percentage of A and B passes in the Standard VII examination. This has implications for secondary education in so far as the first year has in many cases to be taken up with remedial work before proper secondary level instruction can commence. Wastage in primary schools has in the past been significantly affected by the number of over aged pupils and the number repeating each year at any one time. A determined effort has been made to lower the age of entry to primary schools year by year; consequently at present the maximum age for entry in 8, giving a leaving age of 15. Currently there are 7,286 (9%) pupils over the

BOTSWANA EDUCATION PROFILE 1964, 1969



approved age mostly concentrated in the last three standards.

9.17 To reduce crowding which made teaching in some classes virtually impossible repetition has been abolished except in exceptional circumstances, with the result that in 1970 only 281 of the total primary population or 0.3% are repeaters. Though from a purely educational standpoint the objectives of lowering the age of entry to primary school to seven may have much to commend it, the implication of such a policy would be the creation of a body of fourteen year old primary school leavers. This would present no problem if they could be absorbed either directly into the secondary schools or into gainful employment. However, such opportunities are not open to the majority of school leavers who have no option other than to return to the rural sector. An immature fourteen year old is not yet ready to face the task of having to earn a hard subsistence living. If he is lucky enough to gain admission to a Youth Brigade he is too young to undertake a full, arduous, days manual labour for what amounts to four-five days a week. It is also true that a school child often has to walk considerable distances to school and is not capable of this until he is eight years old. For these reasons it is not proposed to reduce the maximum school entry age below eight.

9.18 School buildings are for the most part ill-fitted for the purpose they serve. Of the 280 schools only 103 can in fact accommodate all their classes, 110 can accommodate 50% or more, 64 less than 50%, while 3 schools have no accommodation at all of any kind other than the shade of a tree. Even where bare classrooms exist basic services such as water supplies and latrines are missing so that teaching elementary hygiene is impossible. In total there are only 372 latrines for the 82,214 pupils. Desks, too, are in short supply only 41,000 pupils have a desk or bench and as can be deduced from the accommodation statistics quoted above many children are educated under the trees. Nearly all schools lack basic teaching equipment and aids.

9.19 The provision of facilities for primary education is the responsibility of Local Authorities. Central Government has provided the Councils with grants related to their responsibilities and financial positions, and this practice will continue during the Plan period (see Chapter XI). Government will also assist by raising external finance for schemes designed to bring about qualitative improvements in the schools. In addition renewed efforts will be made to reform the primary school curriculum which is the responsibility of the Ministry of Education. At the beginning of the 1969 school year a new primary school syllabus was in fact introduced. For the first two years of the course an integrated approach has been adopted, subjects being concentrated into five core areas of language, mathematics, science, social studies and recreational studies. Instruction for the first two years is carried out in Setswana, thereafter English is the medium used. A primary aim of the syllabus reform was to adapt the curriculum as far as possible to the needs of the country, recognising that the great majority of pupils would inevitably be forced to seek their livelihoods in the rural economy. Thus "Agriculture" has been re-introduced into the course of study in Standards VI and VII. What it is hoped to impart in this course is not so much a theoretical knowledge of modern farming techniques but rather to prepare children for an agricultural way of life. It is proposed to further diversify the curriculum in the higher standards by the introduction of Home Economics instruction. To this end, it is intended to establish a Home Economics Teacher Training Programme.

9.20 Government considers that funds available for investment in primary education should be directed during the Plan period mainly to the upgrading of standards rather than to increasing the quantity of education. Improvements in primary school facilities will be achieved as far as possible by self-help and using funds raised by local authorities together with schemes such as the School Partnership Programme. In the long run Government's aim is to provide universal primary education, but in the short term the goal must be to ensure the maximum productivity of the existing system. This will be achieved by a vigorous pursuit of the policies first enunciated in the National Plan 1968-73 and which are still very relevant, namely, splitting up of over-sized classes, better utilisation of facilities and their improvement, continued phased exclusion of over aged pupils and abolition of repetition. The cardinal point being that a greater contribution to the development of the country will be made by one child receiving the full course and well taught than by two who, being only half taught, lose what little they have learnt very quickly and relapse into illiteracy.

Secondary Education

9.21 The economy's requirements of high level manpower, discussed in Section D, must be met by the products of the secondary school system. The objective is to achieve total manpower self sufficiency within 25 years. Planning of secondary education is therefore closely related to the manpower projections. Table 9.2 indicates the annual demands that will be made for category *I*, *II* and *III* manpower and also the anticipated annual supply of local personnel. Projections of supply of

high level manpower have been based on the assumption that 25% of the pupils completing Form V will proceed to degree or diploma training whilst the remainder will enter the Category II work-force directly and receive in-service vocational training. The demand for Category III manpower more than equals the combined demand for Category I and II, and hence it is planned that 50% of Form III pupils should leave to enter the work force. The participation rate has been assumed to be 80%. During the Plan period studies will be made to check these assumptions. Table 9.7 sets out the planned expansion of secondary school enrolment 1970/75 and the consequential supply of high level manpower by category.

9.22 As Table 9.7 shows the pattern of secondary education is one of five years. After Form III pupils take the Junior Certificate examination of the University of Botswana, Lesotho and Swaziland, a qualification which at present marks the entry point for permanent Civil Service, nursing and teaching appointments. The further two years of secondary education prepare students for the Cambridge School Certificate examination. This failure to co-ordinate the Junior Certificate and School Certificate syllabi has been heavily criticised on educational and economic grounds. During the plan period studies will be made aimed at a uniform syllabus which may lead to a possible reduction in the length of the School Certificate course. In overall terms the success rates in the J.C. and Cambridge examination both seem historically to have fluctuated from year to year.

Table 9.5 Output of the Secondary Schools 1959/74

	1959	1964	1969	(Projected) 1974
Junior Certificate	91	136	358	1,119
Cambridge Certificate	5	27	152	544

9.23 The limited number of Batswana currently receiving post secondary education is a result of the limited output of the secondary schools prior to 1965 as shown in Table 9.5. Even more serious than the lack of qualified entrants for further education are the limits imposed by the bias currently revealed in secondary school work. This bias is reflected in the total number of students entering each subject for the Cambridge examination in 1969.

Table 9.6 Subjects Offered in School Certificate Examination

Subject	Number Entering Subject Examination
1. English Language	213
2. English Literature	205
3. Geography	167
4. Maths	153
5. Tswana	144
6. History	134
7. General Science	126
8. Biology Practical	117
9. Physical Science	50
10. Life of Christ	46
11. Health Science	43
12. French	35
13. Principles of Accounts	33
14. Commerce	22
15. Latin	14
16. Agricultural Science	14
17. Other Languages	2

Source: Ministry of Education

This implies that even four or five years hence the bias of university graduates towards arts degrees cannot easily be significantly righted. Given the long gestation period recent improvements in facilities for teaching science in secondary schools will not have any impact at graduate level for another eight to ten years.

9.24 Amongst other factors success in examinations depends on the quality of instruction a student receives. This in turn is a function of the ability and qualifications of the teachers together with the rate of teacher turnover. It appears that there is a rather low positive correlation between pass rates at Junior Certificate and teacher permanency in schools though the evidence is inconclusive.

9.25 Better quality teaching should in the long run lead to a reduction in the wastage rates within the secondary school system. Qualitative improvements in primary school education will also have the same effect. Reduction in the age of primary school certificate holders will provide a greater number of candidates eligible for secondary education and may also result in a reduction in wastage. This latter problem is a cause for considerable

concern. Two factors promise to lead to a reduction in the age of primary school leavers; regulations setting a maximum age limit of 8 years for entry to Standard I and the enforcement of an automatic promotion system in the primary schools. During the Plan period the number of over age pupils entering secondary schools will be greatly reduced and efforts will be made to minimise wastage. Wastage between forms I and III is still currently about 20%, and there is also some wastage between forms IV and V, though this is minimal. Recognising the prime importance of the selection procedure in a situation where at present only 23% of standard 7 children go on to form I the Government has with the Governments of Lesotho, Malawi and Swaziland signed an agreement with U.S. AID. to establish a Regional Testing Centre. This centre, with its headquarters in Malawi and a branch in Gaborone, will provide the Governments with a comprehensive system of aptitude tests to enable selections not only, but primarily, for secondary schools to be made more efficiently.

9.26 At present secondary education is carried on in eleven institutions; four are run by Government, while of the seven aided schools four are administered by missionary bodies. The eleventh school, at Maun, which has been built by the Methodists was opened in January, 1970. During the next five years it is anticipated that new schools will be built at Lobatse, Mahalapye, Totome and Selebi-Pikwe. In addition all the existing institutions will have to be expanded to allow for the increased enrolments made necessary by the manpower demands. The intension is that schools which at present operate at an uneconomic size will be increased to at least three or four streams thus allowing more flexibility within the school as well as the achievement of substantial economies. Pupils will then be able to follow a more diversified curriculum and efforts will be made to provide facilities to allow for example the teaching of home economics to girls. Given that selection has to take place on a national basis and given the size of the country some boarding facilities will be necessary at all schools. However, wherever possible the number of day scholars will be maximised thus reducing the unit recurrent costs. The proposed development of the secondary system during the next three years will be as follows: (see Table 9.8).

Table 9.7 Projections of Secondary School Enrolment

	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
1. Number of New Form I	9	2	11	6	6	10	10									
2. Enrolment in Form I	1,186	1,255	1,640	1,850	2,060	2,410	2,760	–	–	–	–	–	–	–	–	–
3. Enrolment in Form II	863	1,161	1,230	1,607	1,813	2,019	2,362	2,705	–	–	–	–	–	–	–	–
4. Enrolment in Form III	532	820	1,103	1,168	1,527	1,722	1,918	2,244	2,570	–	–	–	–	–	–	–
5. Enrolment in Form IV	265	266	410	552	584	764	861	959	1,122	1,285	–	–	–	–	–	–
6. Enrolment in Form V	203	259	261	402	541	573	748	818	940	1,099	1,259	–	–	–	–	–
7 Total Enrolment	3,049	3,761	4,644	5,579	6,525	7,488	8,649	–	–	–	–	–	–	–	–	–
8. Category I Entering Work Force	9	30	36	28	32	41	52	52	80	108	115	150	164	188	220	252
9. Category II Entering Work Force	97	122	155	157	241	325	344	449	491	564	659	755	–	–	–	–
10. Category III Entering Work Force	186	213	328	441	467	611	689	767	898	1,028	–	–	–	–	–	–

Note: Retention rates used:– Form I to Form II 98%
Form II to Form III 95%
Form III to Form 50%
Form IV to Form V 98%

EDUCATIONAL FACILITIES

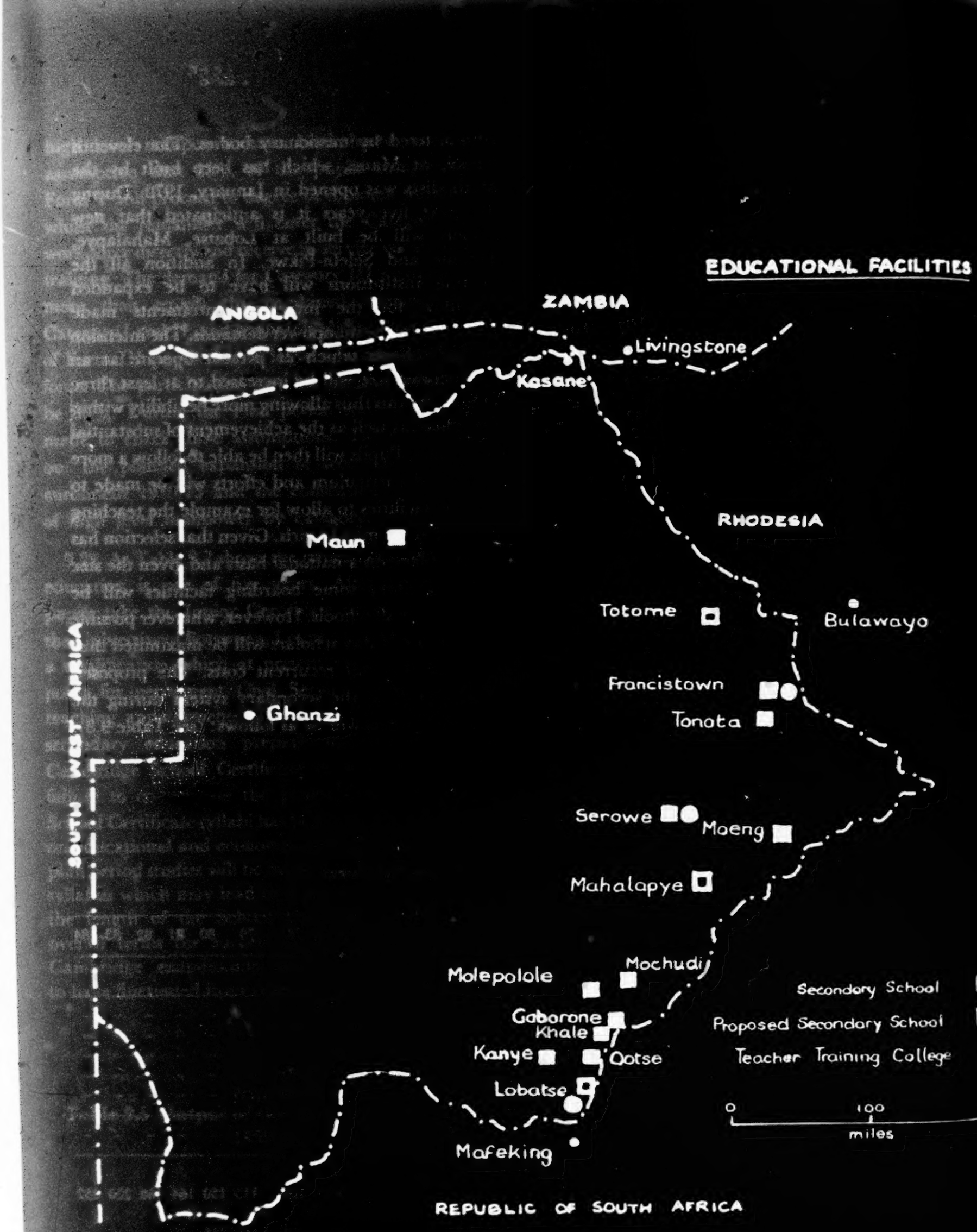


Table 9.8 Number of Forms 1972

	I	II	III	IV	V
Gaborone	6 (4)	4 (4)	4 (3)	4 (3)	4 (3)
Kgari Sechele	4 (4)	4 (2)	4 (2)	– (–)	– (–)
Molefi	4 (4)	4 (2)	4 (2)	– (–)	– (–)
Seepapitso	4 (4)	4 (3)	4 (2)	– (–)	– (–)
Mater Spei	4 (3)	3 (2)	3 (2)	1 (1)	1 (1)
Moeding	4 (3)	3 (2)	3 (2)	3 (2)	2 (2)
St. Joseph's	4 (3)	3 (3)	3 (2)	3 (2)	2 (2)
Moeng	3 (3)	3 (2)	3 (2)	1 (1)	1 (1)
Swaneng Hill	4 (4)	4 (4)	4 (3)	4 (2)	2 (1)
Shashi River	4 (4)	4 (3)	4 (–)	4 (–)	2 (–)
Maun	4 (–)	2 (–)	2 (–)	– (–)	– (–)
Lobatse	2 (–)	2 (–)	– (–)	– (–)	– (–)
Mahalapye	4 (–)	4 (–)	– (–)	– (–)	– (–)
Totome	4 (–)	3 (–)	– (–)	– (–)	– (–)

Note: (1) Figures in brackets represent number of forms in 1969.

(2) Details of these developments are given in Part II.

9.27 Although secondary school enrolments have doubled in the last three years the demand for places has far outstripped the number available. As a result many pupils unable to gain admission have turned to self-help night-schools organised on a voluntary and private basis. Even though fees of up to R20 per annum are charged there is still an overwhelming demand for admission to these institutions. There is a serious problem here, over-expansion using inadequate facilities and sub-standard teachers may lead to chaos, disillusion and bitterness for the young people. Government is concerned that these self-help enterprises should be conducted on as sound a basis as possible and not expanded beyond the resources available, particularly in respect of staff. Consideration will be given to the establishment of a National Correspondence College. Such an institution could provide courses for night schools to either supplement the teaching where adequate or replace sub-standard instruction. As well there would be scope for expanding activities beyond just the night schools, Junior Certificate market, but any such expansion would have to be most carefully controlled and planned to avoid the possibility of a breakdown in the College's service to its students. Initially the College could only cope with small numbers but when the system is firmly established then enrolments can be gradually raised to very substantial levels.

9.28 Great care needs to be taken to ensure that the secondary schools, night schools and any future correspondence organisation provide the right kind of instruction. Diversification of the curriculum can at best in the long run contribute much to the development of a skilled, versatile, labour force equipped with the right kind of relevant background. Already a lead has been given within the Botswana education system by first Swaneng Hill and secondly Shashi River School. New subjects such as Development Studies have been introduced along with subjects with a practical bias such as Building Science. Both of these subjects have already been accepted by the U.B.L.S. Examination Council as approved subjects for Junior Certificate. Expert advice will be sought to improve the quality and scope of new courses, to advise on the implementation of such schemes, to suggest ways of improving teaching material and in general to advise on the practicability and desirability of further diversification. As well as advice, funds will be allocated for the provision of necessary equipment for example the installation of Home Economics facilities. Wherever possible schools will be urged to co-operate as closely as possible with locally established brigade training organisations. Students will also be encouraged to take part in Community Development projects, both in conjunction with school activities and at home during vacations. The importance of these pursuits cannot be over-emphasised. Entrance to secondary school is a privilege as the statistics demonstrate and every attempt must be made to ensure that secondary school students are constantly made aware of their duty to the community which has sacrificed to educate them.

Teacher Training

9.29 The teaching force in Botswana's schools is currently made up as follows:

Table 9.9 Teaching Force by Qualification (1969)

(1)	*Untrained*	*% of Total*	*Trained*	*% of Total*	*Total*
Primary	809	39.7	1228	60.3	2037
(2)					
Secondary					
(a)					
Govt. Schools	21	35.0	39	65.0	60
(b)					
Aided Schools	51	52.6	46	47.4	97
(c)					
Total	72	45.9	85	54.1	157

With the above teaching force and total enrolments of 82,214 in primary and 3,049 in secondary schools teacher: pupil ratios work out at 1:40 in primary 1:19 in secondary school an improving situation. None the less it is disturbing that such high percentages of teachers remain without any professional teaching qualification. For primary schools the goal is to provide all schools with trained staff.

9.30 Teacher training courses are conducted in three training colleges at Lobatse, Serowe and

A Primary school in Botswana.

Science Class – Gaborone Secondary School.

Francistown. The college at Lobatse provides both the Primary Lower and Higher courses, while Serowe has only the former. The Francistown College, the newest was formally opened in October 1968 and is the home of a special upgrading programme for primary school teachers. As well it is the current base for the advanced teachers course designed to produce teachers capable of teaching either in the lower forms of secondary or the higher forms of primary schools. There are no full secondary level training courses within Botswana, but these are available at U.B.L.S. During the Plan period subsidiary courses will be made available via two regional schemes. U.S. AID have funded a programme which will consist of a series of short courses specifically for primary school headmasters covering all aspects of their work, administrative as well as academic, while a request is currently before U.N.D.P. (SF) for assistance with science teaching at all levels.

9.31 Governments intention is to upgrade the entry qualification to the Primary Lower course from Standard VII to a minimum of three years of secondary education. This is a function of the increasing secondary school enrolment and the rate of success at Junior Certificate level. Entry to the Primary Higher course will remain possession of Junior Certificate. There should not be any appreciable drop in the total number of trained teachers being produced as the Primary Higher course of two years is one year shorter than the Primary Lower course. The result of these changes should eventually be a general upgrading of the quality of the teaching force and hence an improvement in the standard of primary school education. The policy is two-pronged (i) to upgrade the force as stated above and, secondly (ii) to train the untrained staff. The latter objective will be achieved through the in-service scheme at Francistown T.T.C. This programme is a mix of periods of residential tuition and correspondence work. The course lasts two years with a total of three six week periods in college and the rest of the time devoted to correspondence assignments. The in-college periods are at the beginning, middle and end of the course, while in between the teachers return to their schools completing their correspondence work in their own time. Groups of 60 teachers are taken in, the first ones in 1968. These first groups have in 1969 begun to return to the College for their second in-college session. The peak will come in August 1970 when there will be three years groups of students resident at the same time. By 1972 the upgrading programme should be nearing completion, thereafter the Francistown College will be used as a more conventional training centre. At present some 500 teachers are at some stage of the Francistown course.

9.32 Of the 157 teachers employed in secondary schools in 1969 only 54% had received any professional training, 15% were citizens, 85% were expatriates of whom 41% were volunteers. This is clearly a most unsatisfactory situation. Several generalisations may be made. Firstly, so far Batswana constitute a very small proportion of the current teaching force. Secondly, a key factor in manning the schools has been the supply of South African Africans. Thirdly, recent rapid expansion has only been made possible by the injection of a considerable number of volunteer teachers. During the Plan period strenuous efforts will be made to build up a strong cadre of Batswana teachers possessing the requisite qualifications. As a first step Government will remove the disparities which exist between the salaries paid to new entrants to the civil service and to teaching for persons of equivalent qualifications. A programme to train diploma teachers to work in the lower secondary forms or upper primary forms has been started, and will be expanded as suitable candidates become available. Consideration will be given to schemes to provide short run relief using new Batswana graduates instead of expatriate volunteers. However it will be a long time before there is likely to be anything like enough local graduates to allow full localisation of the teaching force and continued reliance will be placed on volunteers, mission personnel and other contract teachers.

Table 9.10 Projected Demand and Supply of Teachers

(1) *Demand*	1970	1975	1980
(A) *Primary*			
Projected Enrolment	84,000	94,000	126,000
REQUIRED	2,100	2,500	3,600
ANNUAL DEMAND	108	155	358
(B) *Secondary*			
PROJECTED ENROLMENT	3,700	8,600	15,700
STOCK OF TEACHERS	172	402	732
ANNUAL DEMAND	22	62	95
(2) *Supply*			
(A) *Primary*			
Lobatse T.T.C.	54	80	90
Serowe T.T.C.	58	80	90
Francistown T.T.C.	—	—	180
	112	160	360
(B) *Secondary*			
Locals	7	13	38
Expatriates	15	49	57
	22	62	95

9.33 Projections have been made of the demand and supply of teachers for both the primary and secondary levels, these are given in Table 9.10. Considering the primary education sector first; the projected enrolment takes account of an anticipated rate of increase of new entrants to standard I of 5% per annum and also of improving retention rates as the average age of primary school children falls. Between 1970 and 1980 the proportion of children of the group aged 5–14 attending school will rise from 52% to 75%. The stock of primary teachers required reflects a teacher pupil ratio of initially 1:40 falling to 1:35 by 1980. The annual demand for teachers is determined by two major factors, wastage due to death, retirement resignation and the natural growth of the system. As pointed out above during the Plan period Francistown T.T.C. will concern itself with the upgrading of teachers already in-service. This is reflected in the supply of new teachers schedule in Table 9.10 where it is shown that no new teachers will be forthcoming from Francistown until after 1975 by which time a start will have been made on conventional training.

9.34 The projections of demand for secondary school teachers assume constant 1.4 teachers per class ratio, while annual demands are, once again, determined by wastage and natural growth factors. As pointed out elsewhere in the section on Secondary Education enrolments at this level are geared to high level manpower demands. However, the length of time from initial entry to secondary school until graduation and entry to the labour force is approximately ten years so the ability of the education system to respond to rapidly changing demand conditions is heavily circumscribed. This must be borne in mind when considering the supply position which reveals a continuing reliance on expatriate teachers. The supply of Batswana teachers represents 25% of the total annual supply of category I manpower but is still inadequate. It will not be until the late 1980's, that the products of the rapidly expanded secondary school system will become available in sufficiently large numbers to radically alter the balance.

Higher Education

9.35 The historical lack of attention given to the development of education in Botswana manifests itself in the acute shortage of local category I (degree and diploma holders) manpower. As table 9.5 shows, in 1969 in the face of a demand for an additional 175 persons in this clas there were only 9 qualified students entering the labour force. Secondary school enrolments have and will continue to expand at a rapid rate, but this automatically introduces a lag of about ten years before additional graduates are available in large numbers. Consequently not only for the next five years but also for the next twenty there will be an undersupply of category I manpower which will be met by the recruitment of expatriates. The shortage of Batswana graduates will be steadily reduced and the need for expatriates virtually eliminated by 1990.

9.36 At present there are no post school certificate courses offered anywhere in the country. Students going on to further education either enrol for the four year U.B.L.S. course or an equivalent course elsewhere, or they have to go overseas to first acquire an Advanced-level qualification, before proceeding to higher education. Because of the small numbers that will be potentially enrolled for many years to come it is considered that the best solution to the problem of post school certificate instruction is not to start Sixth Forms in existing schools, but to create a suitable centre where such work can be undertaken at least cost and with maximum diversity.

9.37 The future form and scope of further education in Botswana has been the subject of two specialist missions in 1969 the first undertaken by the University Planner, Sir Norman Alexander and the second by a team under Dr. O. G. Pickard's leadership. Sir Norman Alexander's task was specifically concerned with the future of the University of Botswana, Lesotho and Swaziland, and his report provides a blueprint, for the future development of the University to meet the manpower needs of the three countries it serves. It is now intended that a fully comprehensive University development plan should be prepared during 197 based on the Alexander Report. Professor R Wright has been appointed to undertake this work and will be assisted by a team of specialists. Only when this draft plan is available will it be possibl clearly acertain the future levels of financial commitment the Governments will have to make t maintain this regional institution. It was th adoption of a strict investment approach to educ ation by the three Governments that created th pressure for this fundamental review of the Univer sity and which in the long run will be the mai factor determining the character of U.B.L.S Desirable educationally though it may be fo University places and courses to be provided for a qualified candidates regardless of employmen

prospects and national development plans, given the conditions of financial stringency in which the three cooperating countries find themselves, this is not feasible. The strictest control must be exercised to ensure that courses offered relate to the countries' manpower demands, and that no uneconomic classes are allowed within any faculty, so that unit costs per pupil are minimised. This in essence is the approach accepted in the Alexander Report and endorsed by the three Governments as the basis for future planning.

9.38 A paramount consideration if the University is truely to be felt to belong to all the participating countries is that there should be some significant physical presence in each country. With this in mind the Alexander Report recommended the devolution of University Part I courses to centres in the three countries. This proposal has been accepted by all three countries. In Botswana the University's presence is currently confined to a small Short Course Centre. If the University is to be structured so that uneconomic classes are avoided, then it will not be possible for U.B.L.S. to provide full degree teaching in more than a limited range of subjects. Consequently some students will still haye to be sent to other Universities. Provision for A-level teaching where necessary for such people will be provided at the University Centre alongside Part I instruction, thus achieving the maximum economies. The Alexander Report stressed the desirability and need for the University to be involved in more diploma level activities and these too should be accommodated in the national University Centre so as to ensure maximum coordination. There is also a need to provide facilities for other types of post O level vocational training. All these needs will be met in one institution. (see Project LS02).

Vocational Training

9.39 Fulfilment of much of this and future plans is contingent on producing sufficient skilled workers to undertake the various projects. It is neither desirable nor feasible to rely on the importation of trained personnel, except as a short term expedient. Vocational training is thus given very high priority in this Plan. So far Government has been unable to secure the necessary outside assistance to prepare a comprehensive vocational training plan. An experienced expert is under recruitment, and the preparation of such a plan is Government's immediate objective.

9.40 The urgent need to produce a large number of skilled workers in a short time is emphasised by projections of the demand for trained manpower which will arise as a result of the development of a mining sector of the economy. If importation of labour is to be avoided then trained workers will be needed in the construction industry and for the mines themselves, as well as for secondary industries. Modern accelerated training methods will be used to produce the competent skilled men required in as short time as possible rather than any lengthy instutionally oriented apprentice type scheme. Training will be closely geared to the demands of the private sector as well as Government's own needs. Detailed manpower studies will be undertaken to obtain estimates of the size and nature of the programmes needed. The closest possible consultation between public and private sectors will be necessary and will be actively encouraged. To facilitate this the National Technical Training Advisory Committee will be restructured to improve the efficiency of its operation. Such a forum is considered essential to obtain the full involvement of the private sector in vocational training. For too long firms operating in Botswana have been able to ignore their responsibility to train citizens by importing the workers they require from other countries. This considerable drain of resources and attendant loss of scarce of jobs to Batswana must cease. Local people must be provided with the maximum opportunities for acquisition of skills.

9.41 The UNDP is assisting Botswana in the field of vocational through a Special Fund project which has two distinct components — (i) the formation of a Division of Vocational Training within the Ministry of Education, and (ii) the establishment of a new vocational Training Centre in northern Botswana (see Project ED29). The new Division will oversee all training schemes to ensure implementation of the vocational training plan mentioned above. It is intended that the new Division will oversee all training schemes to ensure maximum coordination and thereby achieve the optimum use of training facilities and staff, wasteful duplication should thus be eliminated.

9.42 The Special Fund project envisages the upgrading of a number, of promising craftsmen in a variety of skills; motor mechanics, welding and pipe fitting, electrical trades, fitting and turning, plumbing, sheet metal work, building trades and carpentry. This will be followed by instructor training for those who demonstrate greatest aptitude in each trade group. At the same time a new Vocational Training Centre will be

built in Francistown. The newly trained instructors will staff this Centre. Until the Francistown Centre is constructed formal institutional courses of instruction in technical subjects will be taught at the Botswana Training Centre; various Government technical departments (e.g. Telecommunications, Water Affairs Department) also have facilities for training. In addition, as explained in the section on Youth training of artisans is also being conducted by Youth Brigades. The B.T.C. has hitherto accommodated a wide variety of vocational training programmes; these have ranged from full three year technical courses down to one week short – courses for specific groups or skills. Technical training at the artisan level is to be gradually phased out at the B.T.C. once the Francistown Centre is started. B.T.C. facilities will utilised for that part of Phase I of the U.N.D.P. project concerned with upgrading and instructor training. The spare capacity available will be taken up by a one year post primary pre-employment craft course, starting in 1970. This course will provide a basic introduction to trades such as bricklaying, carpentry, electrical installation, and general engineering. Given the background of potential students, this should ensure that graduates of this course will be much better qualified recruits for other training courses whether they be Government or privately sponsored. Those students who do not have the aptitude or ability to absorb further training will have had a sufficient basic training for them to enter industry as productive workers.

9.43 Arrangements for Trade testing, which so far has been carried on at the B.T.C., will be reviewed. Given the probable introduction of 'Unit' Training, new methods of assesing standards will have to be devised.

9.44 The important link between education and training is recognised by the establishment of youth training brigades as part of, or in conjunction with, secondary schools. Brigades organisations now exist at Serowe, Tonota, Mochudi, Lobatse, and Kanye, while an additional complex is planned to be based near Maun. Brigade type training is a system of on-the-job instruction; the trainees work on projects from which sufficient revenue is generated to cover the recurrent costs of the operation including the maintenance of trainees. Brigades were started in a rural environment and were envisaged as a training ground for artisans geared to the needs of the rural economy. However, manpower studies have shown that if a grave undersupply situation is to be avoided in the short run then brigade trainees will have to be absorbed into the modern sector in significant numbers.

9.45 As well as offering courses at the artisan level in technical subjects, the B.T.C. also offers a variety of short courses, not only for Government, but for the commercial sector as well. In-service courses for Government departments are mounted in administrative and executive skills, stores, registry and revenue procedures. Typing courses are also held. Special English language courses are run for Government departments. A special Civil Service Training block has been built and is currently staffed by instructors under the S.C.A.A.P. scheme. Special courses have been conducted for cooperative society officers and as well introductory management has been taught to candidates primarily from the commercial sector. As discussed elsewhere, the expanded B.T.C. will retain these functions in its new form. It is planned that it should shed its artisan training role and, as far as technical training is concerned, only provide training at the post school certificate technician level.

9.46 Though no reliable statitics exist on participation rates in the economy there is much evidence to suggest that women play an important role. Vocational training opportunities for women are as important as those for men. Given the aims of improving rural standards of living as well as increasing the scope of productive enterprises, vocational training for women takes on a dual aspect. Women may contribute very greatly to the development of the rural sector, indeed they do so already. Home economics extension workers are already doing much to train women as home-workers. Further approaches in short courses at the Rural Training Centres will foster this sort of work. Vocational training for participation in the production process is currently being provided at Serowe and Tonota in textile brigades. These teach young girls such skills as dress-making, and weaving and spinning.

9.47 Lastly note must be made of the Agriculture College and cooperative Development Centre at Content Farm near Gaborone. These two important training projects are described in Chapter IV.

C. YOUTH

9.48 There are approximately 245,000 people aged between 5 and 19 inclusive. Of these some 85,200 (35%) are attending school, representing a 3% increase over the 1966 enrolment. In 1969 10,300 primary school children left school, only 5,600 of whom had completed the full seven yea

course. Of the latter only 23% can currently expect to get places at secondary schools.

9.49 With the existing rate of development in Botswana, only about three out of ten primary school leavers can hope either to find salaried jobs or obtain further training or education. The remainder must find employment in the rural economy. Young people are aware of the sharp contrast between the high standard of living enjoyed by the select few with paid employment and the standard of living of those in the traditional agricultural sector. They believe — as do their parents — that the only way to escape the unrewarding life of a subsistence farmer is by acquiring education. Hence the great popular demand for education which has led to the crowding of Botswana's primary schools. But education alone does not guarantee employment and, therefore, each year the majority of school leavers discover that they have no alternative but to return to the family farm or enlist for mine work. The white collar jobs to which they aspire do not yet exist. The country thus risks producing a deeply dissatisfied generation of young people who will grow up believing themselves to be failures with no prospect of enjoying a decent standard of living.

9.50 Meanwhile the development process is inevitably disrupting the traditional pattern of social relationships both within the family and in the community at large. The strains and tension which develop are bound to impinge more severely on young people who are striving to establish themselves. The only long term solution to the problems of under-employed youth is through genuine economic development, leading to the natural creation of new job opportunities and the implementation of training programmes to take advantage of these opportunities. The very rapid rate of development projected in this Plan will lead to a rapid expansion of job opportunities. However, the immediate needs of youth cannot be neglected, for ultimately the progress of the nation will depend on them. The Government intends through education in the schools and in youth groups to instil new ideals, a sense of purpose and a dedication to the nation. The youth must be provided with a vision of a better and more prosperous society to the creation of which the national effort may be directed. The concrete steps towards the achievement of these objectives proposed in this Plan are as follows:-

(a) the active encouragement of the formation of Builder's Brigades, Mechanical Brigades, Farming Brigades and other such groups, aimed at the creation of skilled workers who may revolutionise the rural sector;

(b) the continued review of the primary school syllabus to meet the needs of the vast majority of the children who require to be prepared for a rural life in the most practical manner possible;

(c) the active encouragement of youth organisations responsible for character training through recreational activities, such as the Scout and Guides movements, to orientate their activities to meet the peculiar needs of Botswana's youth.

9.51 A major initiative to expand youth training has been taken through the creation of Youth Brigades. The Brigades at present provide training in the following skills: bricklaying, carpentry, farming, weaving, textile manufacture, general mechanics, and tanning. Founded in response to the primary school leaver problem, the Brigades are now finding themselves increasingly involved in the modern sector. This applies particularly to those brigades training students in skills in demand in the construction industry such as bricklaying and carpentry. But though manpower studies indicate clear limits to the expansion of training in artisan and technical skills, there are no such demand constraints on the possible development of the farming and handicrafts brigades. The pilot Farmers Brigades, of which at present there are three at Serowe, Mochudi and Tonota, may well provide a major contribution to solving both the school leaver problem, and the problem of raising rural incomes.

9.52 The most critical problem faced by Brigades is to place the trainees, following the completion of their courses in productive employment. As far as artisan skills are concerned a considerable numbers of trainees will be absorbed by the demand generated in the modern sector. There is scope, too, in the rural sector to create new employment opportunities by the organisation of builders co-operatives and through the provision of services which in the past have been lacking. Boreholes, for example, often remain unrepaired for days at great cost to the owners due to the shortage of people with mechanical skills in rural areas. In the case of Farmers' Brigades the means must be found to adapt traditional attitudes and customs such that a young man trained in modern agricultural techiques is able to return home and

School construction by a Builder's Brigade.

practice what he has learnt effectively without being stifled by his parents and elders.

9.53 At present there are almost 500 young people undergoing training but this represents only a small proportion of the school leavers. Government is directly involved in the future of brigades via the organisations founded under the auspicies of the Department of Community Development. But, given the limited resources of finance and personnel at Government's disposal private initiatives will continue to play a vital role in this field. Government is determined to assist Brigade development and, in particular, the Ministry of Agriculture, via its extension services and field staff, will assist the Farmers' Brigade trainees. Government has also taken the initiative in forming a National Brigade Coordinating Committee to further cooperation between Brigades and to provide a forum for discussion of Brigade policy.

9.54 Brigades are not the only organisations concerned with youth, though they are unique in their approach and the developmental context in which they seek to solve the problem. Government's objective is not only to mobilise youth for the task of development, but also through education, broadly defined, to fit them for life as citizens of Botswana. To this end encouragement will be given to national youth organisations such as the 4–B clubs, the Scouts and Guides; Government will assist them to orientate their activities to meet the specific needs of Botswana. In the schools themselves syllabuses are under review so as to make them as relevant as possible for children who need to be prepared for rural life. Government does not intend to create a youth service on a para-military, political or any other similar basis. Government's hope is that the youth of the country can be voluntarily channelled into productive activities where they can make a real contribution to fulfilling Government's policy of self-reliance. The brigade system in particular offers a means of achieving this goal.

D. MEDICAL SERVICES

9.55 With its clear, dry air and temperate climate Botswana is generally a healthy country. Nevertheless, dietary imbalances ignorance of the value of modern medical practices, low standards of communal hygiene and the past neglect of the medical services have combined to create pressing needs for the improvement and expansion of medical facilities. The sudden growth of new urban centres and the prolonged droughts have exacerbated the problems; the promise of mining developments also calls attention to the need for additional medical services.

9.56 The main diseases prevalent throughout Botswana are enteritis, venereal diseases, tuberculosis, measles, and penumonia. During periods of drought, malnutrition and avitaminosis particularly scurvy are frequently encountered, especially among children. The rate of infant mortality is still relatively high. Malaria is endemic in Ngamiland and Chobe, and epidemics occur in the south during seasons of heavy rainfall; Ngamiland is also infected by sleeping sickness. Bilharzia, both haematobium and mansoni, is found in eastern Botswana and in small pockets in the Okavango delta.

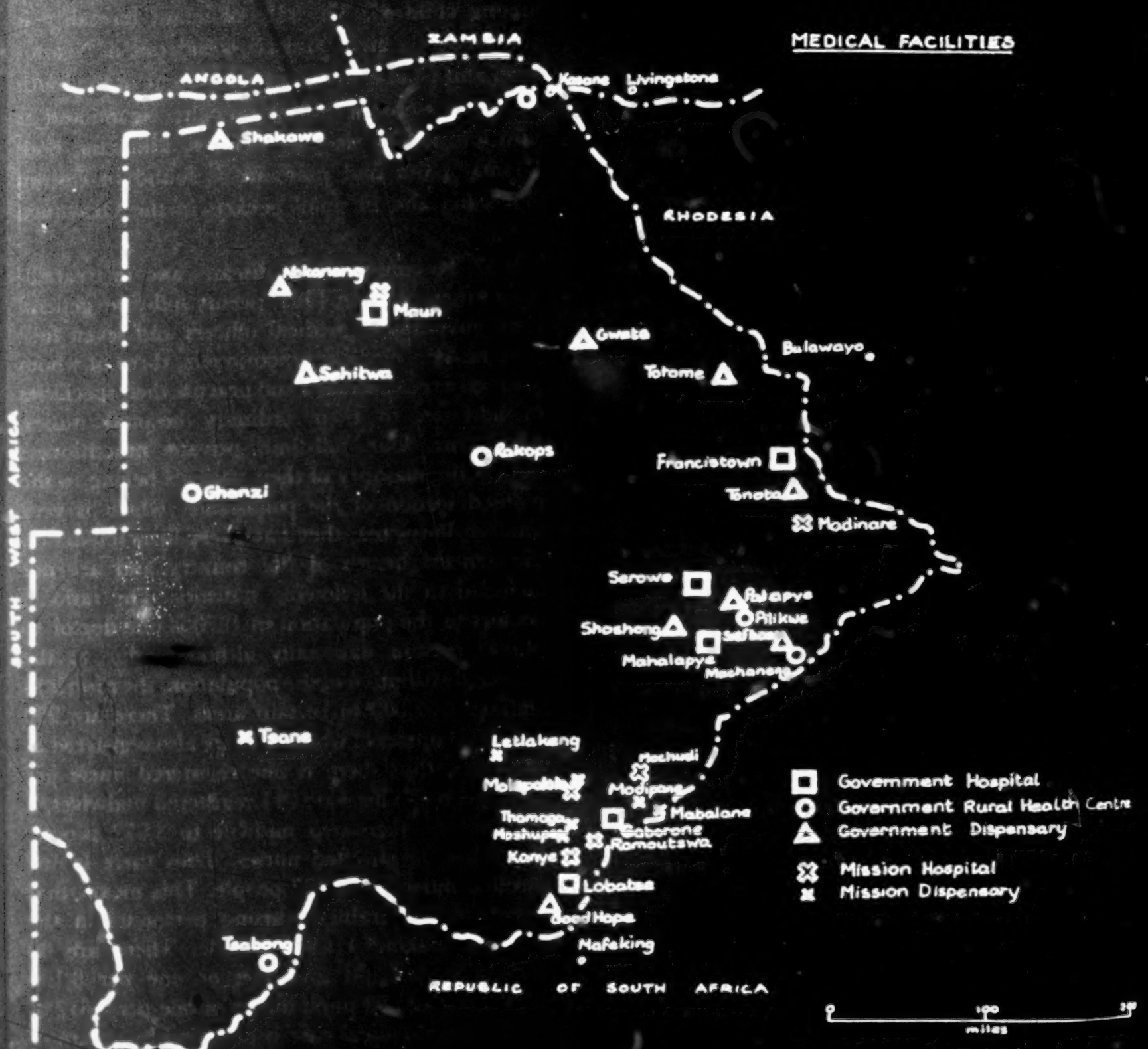
9.57 To combat these diseases and to treat illnesses there were in 1969, twenty full-time general duty government medical officers and seven full-time mission medical practitioners, three of whom are registered specialists and practise their specilities in addition to their ordinary hospital duties. There are four full-time private practitioners but, as the majority of their patients belong to the monied section of the community which is very small in Botswana, they have very little impact on the general health of the country and are not included in the following statistics. The ratio of doctors to the population in 1970 is one doctor to 24,000 persons nationally although, due to the uneven distribution of the population, the ratio is as high as 1:67,000 in certain areas. There are 250 registered nurses of whom 208 are also registered as midwives, thus there is one registered nurse per 2,592 people. There are 211 registered midwives, a ratio of one registered midwife to 3,072 people. There are 78 enrolled nurses. Thus there is one enrolled nurse per 8,307 people. This means that there are 333 trained nursing personnel in the country, making 1:1,916 people. There are 80 student nurse/pupil midwives or one per 8,100 population and 98 pupil nurses or one per 6,612 of population. Medical care is provided by means of hospitals, outpatient departments, health centres, district clinics, and health posts, the latter three having no resident doctors. (See Table 9.11.)

Table 9.11 Medical Institutions

	Government	*Non-Government*
Hospitals	6	6
Mental Home	1	—
Health Centres	6	1
Dispensaries	8	8
Periodic Clinics	45	40

Source: Department of Medical Services

Of the total of 1,785 hospital beds and cots available in Botswana (giving a ratio of 2.8 beds per 1,000 persons) 739 beds are provided by various


MEDICAL FACILITIES
ZAMBIA
ANGOLA
Kasane
Livingstone
Shakawe
RHODESIA
Nkoranang
Maun
Gweta
Bulawayo
Sehitwa
Tutume
Rakops
Francistown
Ghanzi
Tonota
Modinare
Serowe
Palapye
Pilikwe
Shoshong
Mahalapye
Mochanega
Tsane
Letlakeng
Mochudi
Molepolole
Modipane
Mabalane
Thamaga
Moshupa
Gaberone
Ramoutswa
Kanye
Lobatse
Good Hope
Mafeking
Tsabong
REPUBLIC OF SOUTH AFRICA
SOUTH WEST AFRICA
Government Hospital
Government Rural Health Centre
Government Dispensary
Mission Hospital
Mission Dispensary
100
miles

mission organisations, upon which the Botswana Government places great reliance. With the exception of the Princess Marina Hospital at Gaborone which is still in the process of development, most of the government medical centres are antiquated and grossly over-crowded, having been built originally as cottage hospitals. The target for the end of the Plan period is that there will be one doctor for every 14,000 persons. Nursing population ratios are more difficult to forecast as the success or failure of the promotion of health activities by local authorities is uncertain. Since the majority of nursing personnel are qualified both as registered nurses and registered midwives they have been grouped together for projection purposes. By 1975 there will be one such nurse per 2,300 people. As training facilities improve and numbers in training rise so eventually the ratio of enrolled nurses to population will improve. The Plan objective is that there should be one enrolled nurse for every 1,390 persons by 1975. With the expansion of physical facilities envisaged over the next five years the ratio of beds per 1,000 people will rise from 2.8 to 5. In order meet the staffing demands generated by the expansion of services the following additional number of registered nurses will have to be trained in each year.

1970/71	1971/72	1972/73	1973/74	1974/75
16	32	14	14	16

Refresher and upgrading courses for about 10 nurses already in service will also be necessary on an annual basis.

9.58 While recognising the inadequacy of the existing medical facilities, the Botswana Government is unable to allocate sufficient resources to the health sector to raise, the standard of medical services to an internationally acceptable level. Faced with limited resources and pressing demands for productive investments in all sectors, the Government is forced to restrict medical plans to modest targets. However, during the period 1970-75 it is planned that some R1.4 million (1.8% of total capital expenditure) will be spent on medical services. With the increased use of health facilities both by in-patients and outpatients, the load on hospitals has increased to the extent that their efficiency is dropping and the nursing establishment of each health unit has been reviewed with the aim of maintaining an absolute minimum acceptable standard of efficiency compatible with the economic condition of the country. Unfortunately, though the economic benefit of improved health is enormous, it is difficult to assess it in monetary terms and it is achieved largely by recurrent expenditure. With the development of the Shashe complex it will be necessary to build a new hospital at Francistown, further expansion of the present one which is badly sited would be uneconomic, and to provide new facilities at Selebi-Phikwe. Under the National Health Plan, prepared with assistance from the World Health Organisation, rural health services will be expanded. The Medical Department will organise a training programme in order to produce staff to man new developments. It will be necessary to train many more medical aides, whose designation has been altered to health assistants, as well as all grades of nursing staff.

9.59 Some of the greatest returns in the health field are from preventive medicine and particularly health education. To this and a small health education unit will be established in the public health department to consolidate the present rather ad hoc activities in the field. Health Education extension work (previously project MD 12) will be subsummed under the activities of the Central Training Unit, (project MD 16). Preventive services are administered at the local level by six Health Inspectors based at Lobatse, Gaborone, Serowe, Palapye, Francistown and Maun. The shortage of staff, size of the country and difficulties of transport mean that control of communicable diseases is difficult. Diseases kept under surveillance include plague, small pox, malaria, diptheria, whooping cough, and tuberculosis. Immunisation campaigns against all of these diseases except malaria and plague and in addition tetanus are also carried out in the hospitals and health centres. Future development of preventive services will be concentrated at village level and on maternal and child welfare. A priority is therefore the establishment of clinics in which this work can take place and for staff to man them under the general supervision of an itinerant health inspector.

9.60 With a demographic expansion of about 3% Botswana can ill-afford to allow a population explosion to out-strip the economic expansion (see section on Population Chapter II). It it also recognised that improved child care can be achieved through family planning. To cater for those who want to plan the size of their families the Government has sponsored a training programme run by the International Planned Parenthood Federation. This appeared to be very successful but sufficient time has not yet elapsed for accurate assessment. The International Planned Parenthood Federation has provided the services of a doctor and subsidiary staff as well as transport to increase the scope of maternal and child health activities in the Serowe area under the direction of the Medical Department. During the Plan period Government wishes to see established, where possible by Local

Authorities, a network of maternal and child welfare clinics at which family planning advice would be available.

9.61 This Plan makes provision for the continued expansion and improvement of district hospitals to cater for the growing demand for medical attention which is increasing at a much more rapid rate than the population is expanding. Further efforts will be made to increase the efficiency of these hospitals by the provision of improved kitchens, laundries and other services as well as those on the technical side such as better operating theatres and better equipment. The development of Princess Marina Hospital in Gaborone as the central referal hospital will continue; it is intended that the new hospital in Francistown will be developed as a referal hospital for the north. A health centre is being built at Palapye to replace the present two-roomed clinic which for many years has been grossly inadequate. It will also be necessary to make major additions to Mahalapye Hospital by providing an operating theatre, a surgical ward, and extra staff quarters. At the moment, major surgical emergencies have to be transported to Serowe 72 miles away or to Gaborone which is even further. These improvements have not been made before owing to the shortage of medical officers available at Mahalapye.

9.62 Government has, for many years, subsidised mission hospitals but, owing to financial stringency, these subsidies have not been increased for some time and with the rise in the cost of nearly all commodities, mission hospitals are reaching the stage where they are financially unable to continue. Either subsidies must be increased or Government must take over these hospitals along with the enormous increase in recurrent expenditure that this would entail. The position of certain mission hospitals has been aggravated by the fact that, despite numerous warnings from Government, they have over-capitalised and find they cannot provide the increase in recurrent expenditure resulting from this over-capitalisation. If Government is to increase its subsidies, then it must be consulted about new development and mission hospitals should not undertake any new expansion which increases recurrent expenditure without the consent of Government. The contribution toward the general health of the country made by mission hospitals is enormous and Government wishes to ensure that this contribution may be able to continue and expand in clearly defined directions.

9.63 Manpower projections indicate that it is necessary for much greater emphasis to be placed on staff training programmes. While the output of junior certificate candidates has increased enormously, applicants for nursing training have had to be refused because of lack of teaching accomodation. It is clearly evident that the whole of the medical development envisaged in the next five to ten years is based on a successful staff training programme. For this purpose Government will establish a Central Training Unit in Gaborone to provide instruction for not only nursing staff but health assistants as well.

E COMMUNITY DEVELOPMENT

9.64 Community development is a method of improving the standard of living in a country through the active participation of the people. Through Community Development, the people learn to analyse the needs in their communities and to put their plans into action. The Government recognizes that the economic and social development of Botswana greatly depends on the extent to which the majority of the population are prepared to change their traditional attitudes and practices for a more modern and scientific mode of life. In a country such as Botswana, where the life of the majority of the people is determined by tradition, all development means change, change not only in their way of life but also in the attitudes and values which underlie this way of life. In order to be successful, plans for development in areas which affect the people — such as new methods of cultivation, the introduction of new types of crop, changes in attitudes to health and nutrition — must be understood by the people and the reasons for these developments appreciated. Community development is concerned with teaching the people in the villages and townships to prepare themselves for change, to welcome it and benefit from it.

9.65 The inital objective of the Community Development Department is to stimulate a desire for improvement of the standard of living in the community and aid in its achievement. The objectives are translated into action through the work of the Community Development Assistants (CDAs); it is they who are in daily contact with the people, are responsible for stimulating interest in the people towards development and encourage the villages to elect their Village Development Committee. They help the committee organize itself, give it guidance in planning and implementing projects, and acts as a liaison between the village, District Councils, other extension officers, the Community Development Department and other Government departments. The present activities of the Community Development Department

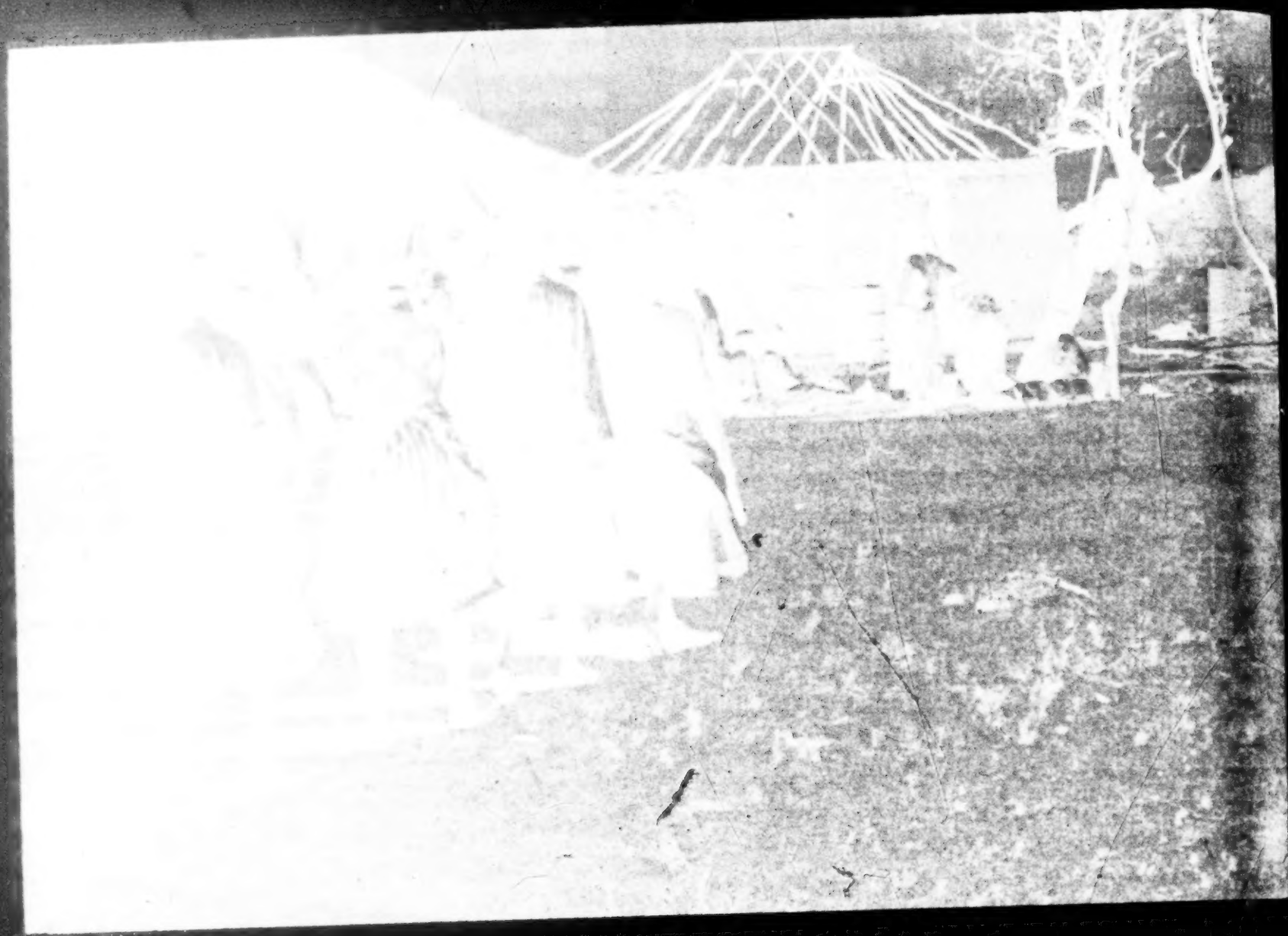
based on 46 established CDAs and 50 temporary CDAs employed under The Food for Work and other feeding Programmes, supervised by a Community Development officer, 5 Assistant Community Development officers, and 11 Senior Community Development Assistants. The long-term objective is to have one CDA per 350 families, which will require over 300 CDAs. During the Plan period the number of CDAs will reach 170. In 1971 a two year diploma course will be instituted to provide training for CDAs under the sponsorship of the Community Development Department. This course will provide specialised training and also be integrated with the programmes at the Rural Training Centre and Botswana Agricultural College. These training programme will provide future CDAs with skills in a variety of subjects which are required to enable the CDA to perform his job efficiently. Trainees will also be able to take advantage of the new Home Economics wing which will be built in 1970 at the Rural Training Centre. During the Plan period it is intended to upgrade 10 temporary CDAs, who have had no training, to established CDAs per year and train 15 additional people per year.

9.66 The successful implementation of the Community Development programme depends upon the efficiency of the Community Development Assistants, the active co-operation of the extension officers of other departments, and, most of all, upon the enthusiasm and hard work of the people in the village. Before any progress can be made in development, projects have to be planned, resources determined, and people organised. For this reason the establishment of the Village Development Committees (VDC) will be encouraged, especially where there are CDAs available to help and advise them. The responsibility of these committees is the development of their community; this is the group in the village which determines what the community needs in terms of buildings, educational facilities, economic, social and recreational amenities and which makes plans accordingly and mobilizes the resources of the community to implement these plans. Since they are elected by the people in the village and the decisions and plans of the committee are discussed by the people at the Kgotla, the people are able to take an active part in the development of their own community.

9.67 The VDC serves as a vital link in the formulation of District Development Plans (see, chapter XI). These organisations relate their needs, which form the basis to the preparation of the District Council Development Plans, to the Council Planning Committee. Through this planning structure the Council learns of the needs of the villagers and is able to ensure an optimum allocation of funds of assist the villages to develop. Inclusion of their development projects in the District Development Plan, means that Central Government is aware of the needs of the individual villages and is able to provide the financial (see chapter XI) and technical assistance for the projects which the Council cannot provide. The Community Development Department provides assistance through their self-help programme. All projects under-taken by the Community Development Department are at the request of the VDC and are contained in the District Council Development Plan. In future these projects will be channelled through the District Council whether or not financial assistance is required. If financial assistance is required the Council will be able to assign priority to these projects taking into account their limited financial resources, and the Assistant Community Development officer will be responsible for informing the VDC of the Council's decision relating to these self-help project. The Secretary of the Council will have the responsibility to inform the relevant Central Government department of a self-help project, approved by the Council, which is of direct concern to it. These procedures will enable Central Government, the District Council, and VDC to attain maximum co-ordination in formulating and implementing a programme of rural development.

9.68 In addition to the development projects which are beneficial to the whole community, the VDC is concerned with other projects which affect only one section of the Community, such as Home Economics courses for women, training in football for boys, and handicrafts for others. In each case, although these projects may have been initiated by the VDC, the people interested in these special projects are encouraged to form groups of their own and learn to manage their affairs in relation to their interests. Consequently a wide range of group activity can be undertaken in the community embracing many aspects of community life.

9.69 The basic unit of community development then is the VDC, which, with the help and advice of the CDAs, acts as an instigator of social change within the village, not only by showing the people the benefits they can achieve through concerted effort, but by encouraging them to change their attitudes, so that, instead of regarding innovation as a threat to their traditional way of life, they know the benefits to be derived from it and seek for themselves the changes in methods, ideas and techniques which will bring about a better way of life. Through these committees every aspect of



Self-help – house building.

Self-help – dam construction.

life in the community can be reached, and, with the help of extension officers, changed and improved with the co-operation and participation of the people.

9.70 During the Plan period literacy classes will be held initially on a small scale in several villages organised by the CDAs, Women's Clubs, or other interested groups. The Community Development Department will help these groups by providing books and materials, sponsor courses for volunteer teachers of adult literacy classes and for leaders or organisations dealing with literacy, and issue certificates to those who have completed the first and second books of "Bala Setswana". For the newly literate people, follow-up material will be produced dealing with agricultural activities, home economics, cooperatives and other topics that are of interest to the rural population.

9.71 The recent drought focused attention on the need to improve nutritional standards in Botswana and to make better use of food resources. The hardship of recent years has in turn made the population more receptive to new ideas regarding better food production, utilization, preservation and storage. A Home Economics Unit has been formed to organise, train, and actively engage rural women in these novel methods and ideas. A number of courses have been successfully held at both village and regional level. Approximately 220 women's clubs have now been formed in Botswana and these will be used as a medium of contact with rural people. These clubs will be encouraged to develop vegetable gardens to meet certain vitamin deficiencies. It is proposed to purchase a mobile van equipped with demonstration equipment to assist in village training. Classrooms and demonstration kitchen will be constructed at the Rural Training Centre near Gaborone for central training courses.

9.72 The programme of self-help, described above, is the most important aspect of the work of the Community Development Department. Over 2,000 projects have been undertaken on this basis; the community is expected to provide the labour, bricks and money, necessary to hire a builder, whilst the Government assists in the provision of other required building and construction material. During the recent drought this programme was supplimented by a Food for Work programme based on self-help principles. 46,000 workers were engaged on 2,114 projects ranging from the erection of school classrooms to the building of dams and roads. Over a period of 27 months a remarkable amount of rural construction has taken place. Full advantage of th programme has been taken to make the peop aware of their own potential.

9.73 In past years a number of handicra projects have been established and are operating various parts of the country, sponsored by th Community Development Department and e ternal agencies. The first of these was started at th Mochudi Community Centre where a leath workshop was established. They are now producin footwear, handbags, briefcases and other articl from both leather and gameskin offcuts. Th Serowe Textile Workshop produces woven ru using both imported Karakul wool and moha from Swaneng's herd of Angora goats. The Lekgal Centre is producing a variety of turned and carve articles in both wood and ivory. At Lobatse project for unemployed women in the area h begun with the idea of providing skills and em ployment. Under the name of "Tiro y Diatla" (Handiwork) these women have bee trained in the making of handbags from knotte sisal twine and in early 1970 the programm expanded to include the production of cushio and mats made of the same material and clothin articles. Due to their diverse origins and locatio these handicraft projects have been operating isolation from one another, but have been facin similar problems through lack of capital an marketing facilities. To alleviate these problems th Botswana Development Trust has been forme which will provide these organisations with marketing facility – "Botswanacraft." "Botswana craft" will purchase their production and rese it within Botswana and externally. Initially workin capital is being solicited from external and domest organizations. The profits from "Botswanacraft will be retained to provide further working capita A Producer's Association, comprised of people fro the various handicraft organizations, has bee formed to set standards of craftsmanship whic products purchased by "Botswanacraft" must mee To provide capital to fully establish these handicra organizations and make them viable ente prises, funds are being sought from external source It is anticipated that by providing a ready marke for all types of handmade articles, people will b encouraged to re-discover and expand traditiona art forms and designs and adopt them to moder usage.

F NATIONAL LIBRARY SERVICE

9.74 On the basis of technical advice given by th Director of the Books Department of the Britis Council, a National Library service has bee established with Headquarters in Gaborone. Spac was provided within the Gaborone Town Ha

Building. In April 1968 when it was opened the National Library received a donation of book-stock worth R10,000 from the British Council and has since increased this to a total of over 27,600 volumes worth approximately R93,000.

9.75 The original plan also contained proposals for the establishment of service points in the major district centres. It is intended that this development should take place during the Plan period, in close co-operation with the various educational institutions and the District and Town Councils. Libraries already exist at Serowe, Mochudi, Lobatse and Kanye and it is planned, initially, to establish a further three as soon as possible at Molepolole, Mahalapye and Francistown. Detailed plans have been drawn up, not only to do this but also to provide existing Libraries with more adequate book-stocks, furniture and equipment and to improve existing buildings. In subsequent years the service will be extended to such centres as Maun, Ghanzi and Palapye and to the new townships at Orapa and Selebi-Phikwe (see Project HA06).

9.76 The long term aim will be to provide a Library service to readers in all parts of Botswana through a network of Branch Libraries in important population centres, supplemented by mobile and postal Library Services to outlying areas. The provision of buildings, vehicles and book-stock will not alone ensure an adequate service. It requires, in addition, professional staff. It will, therefore, be necessary to undertake a training programme both in-service and by sending suitable candidates abroad for both crash and full time courses. This also will be done during the Plan period. The long-term intention, too, is to provide a new National Library Building at Gaborone, since it will not be possible to continue indefinitely using space in the Gaborone Town Hall, which is required for Township needs. It will be necessary to raise finance for this project at the end of the Plan period.

G NATIONAL MUSEUM

9.77 In May, 1966 a committee was appointed to study the possibilities of creating a National Museum in Gaborone. It was decided to constuct a building which would form the nucleus for the Museum which would be completed in stages as expansion required. The main purpose of the museum is to teach the conservation of Botswana's natural resources and this is planned through three Departments: Natural History, Archaeology and Pre-History and Ethnography each of which is biased towards the history of man in Botswana and the uses he makes of his natural resources.

9.78 An appeal launched in 1966 has resulted to date in donations exceeding R50,000 from which six display galleries, stores, offices and an extensive garden have been constructed. Government, recognising the importance of the Museum, now makes it an annual grant of R5,000 which assists in covering recurrent costs. This sum is supplemented from donations received from both large and small concerns in Botswana, and from grants by the Town and District Councils. The future expansion of the Museum and the construction of the Art Gallery must depend largely on public and external assistance.

9.79 The Museum was opened to the public in September, 1968, after temporary displays had been erected in two of the three galleries then built. The Museum started a publication *Botswana Notes and Records;* a semi-scientific journal published annually the first issue of which appeared in 1969. The publication of this journal has been taken over by the *Botswana Society*, started in mid 1969, which is associated with the Museum. The Society is concerned with promoting interest in and research upon subjects in the fields of the Sciences, the Arts and the Humanities, especially where such subjects are related to Botswana. In pursuit of these objectives, the Society holds regular lecture meetings and seminars, and will publish, in addition to *Botswana Notes and Records,* research papers.

9.80 U.N.E.S.C.O. has provided a Fellowship in Museology and the Assistant Curator has been sent on a nine months course at the British Museum. A further place has been offered to the Museum for a nine months course in Museology at Jos, Nigeria which will provide training for a Museum Assistant in 1970.

9.81 Because of the very great value of wildlife to Botswana, the Museum also displays a selection of 300 wild animals, which are important either as meat animals for the rural population or the fast growing Game Trophy industry.

9.82 The Museum is taking its place as an educational institution and a centre of research. By the end of 1969, visitor attendance exceeded 100 persons daily. Further funds will allow for the expansion of the existing displays and their improvement, as well as the opportunity to take mobile displays through the villages, thereby bringing the museum to them. In short the museum will provide with its research, publications, displays and exhibitions of art a national focus for a variety of cultural activities.

9.83 The Plan period will be devoted to preparing permanent displays in the six galleries now

built. This is a highly skilled and costly job requiring a total expenditure of about R30,000. It is also the intention to add, as soon as funds can be found, an art gallery at an estimated cost of R32,000. The collection of material for display will depend largely on donations.

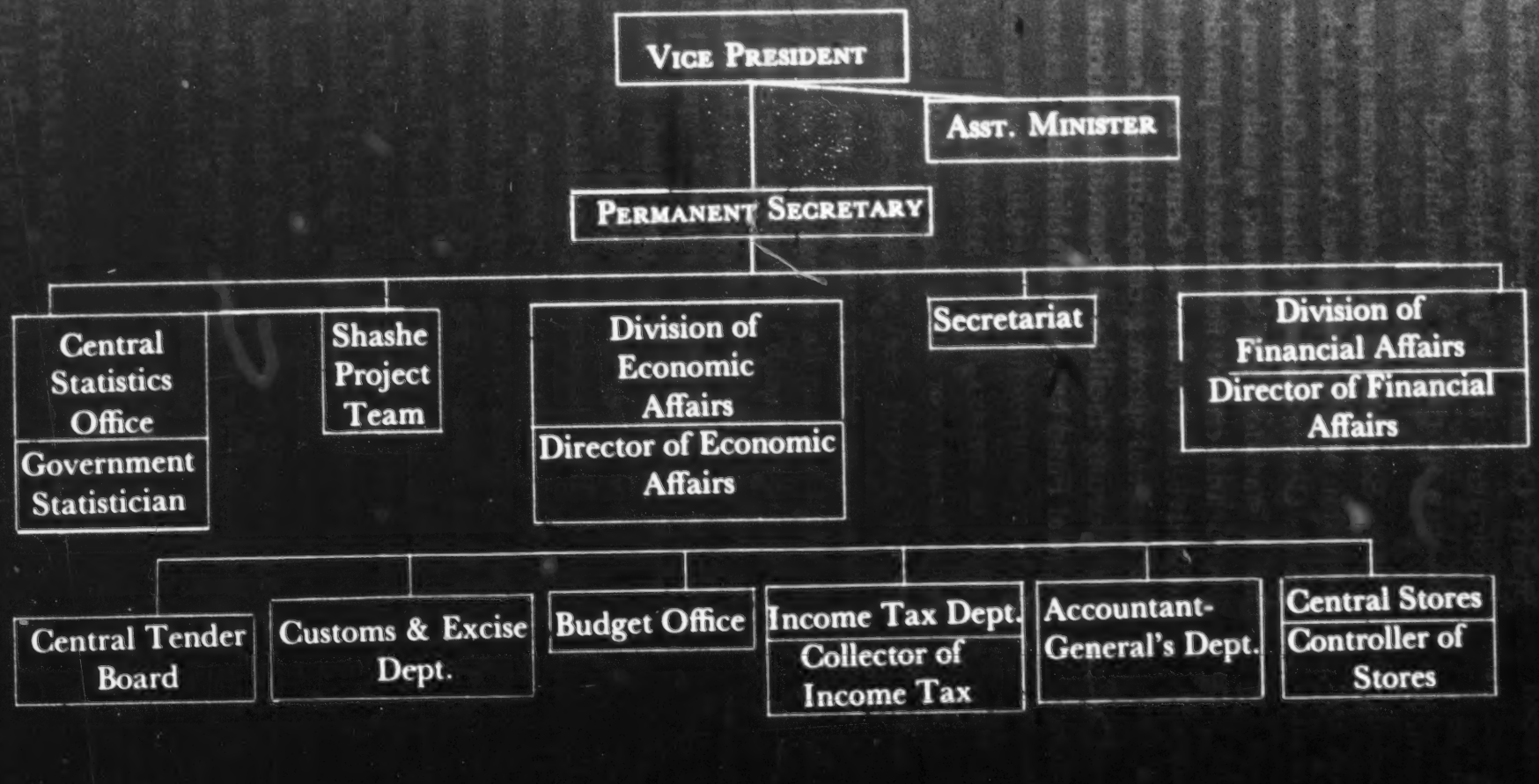
9.84 In a country as relatively under-developed as Botswana a well stocked modern musum would form an integral and valuable part of the educational infrastructure. In more developed countries children can more easily obtain a wider knowledge of their environment both from their schools and in their homes. The possibilities of visual education for children and adults through the Museum are tremendous. The Government recognises this fact and will give the Museum its wholehearted support.

H SPORTS

9.85 Sporting activities at the national level are co-ordinated through the National Sports Council. It is intended that each sport should have its own association and that the National Sports Council should include representatives of all the main sporting associations. So far, the only fully active association is that concerned with football, the national sport. During the Plan period the National Sports Council will be closely concerned with encouraging other associations to be formed so that new sports may be popularized.

9.86 Essential for the development of sport is the provision of proper facilities. A site for the National Sports Centre has been chosen in Gaborone and so far a stadium, golf course, squash court, tennis courts and cricket field have been provided. The objective is to make the Centre a venue suitable for national sporting competitions. To raise funds for sporting facilities a Botswana National Sports Appeal Fund has been established.

Ministry of Finance and Development Planning



Chapter X – Central Government Services

Central Government Administration

10.1 The transformation of the Government organisation from a typically decentralised colonial system to a central ministerial system has been rapid and pervasive. From internal self-government in March, 1965, Botswana moved quickly to independence in September, 1966. The preparation of the Public Service for these constitutional and structural changes was greatly complicated by the fact that the seat of the central government remained in Mafeking, in the Republic of South Africa, until early in 1965, when the move to the newly-constructed capital at Gaborone occurred. The effects of having the headquarters of Government physically located in a foreign country were manifold. It was impossible to associate political leaders closely with the work of Government since some of its members were unable to travel to Mafeking. It was equally impossible to expand the agencies of the Central Government since housing and office accommodation were unavailable in Mafeking and it was pointless to construct additional facilities there on the eve of the departure of the government to Gaborone.

10.2 The move to Gaborone, coinciding with the acquisition of self-governing status, triggered a sudden expansion of the Central Government. Where the central administration in Mafeking had consisted of no more than 25 officers under the Resident Commissioner, there were, by 1967, some 275 equivalent Ministerial posts in the seven Ministries which were created. The initial unfamiliarity of the Public Service with the new organisational structure caused transitional problems which were exacerbated by the dearth of qualified local officers and the departure of a number of expatriates after independence. These difficulties were in turn heightened, by the intensification of emphasis on economic and social advancement, by a rapid expansion of the development programme and by the fact that reforms were simultaneously introduced in the system of local administration.

10.3 Some of these transitional problems remain. There is still an acute shortage of trained local manpower for civil service positions. Certain key departments in Government are still inadequately staffed and equipped for the responsibilities which have been placed upon them; and the continuing need to replace departing expatriate officers presents special difficulties. The Botswana Government is fully conscious of the vital importance of maintaining a vigorous and efficient administrative service. One of the major objectives of the Government is therefore to strengthen the central government administration in order to equip it for its role in the national development effort. To this end, the Ministry of Development Planning was created in September, 1967, under the Vice-President, and provision has been made for further staff expansions in those Ministries and Departments which are most directly concerned with the implementation of national development plans. Adjustments continue to be made in the portfolios of the various Ministries to accommodate shifts in policy and improve co-ordination.

10.4 Experience during the first five years of self-government indicated the need to rationalise the organisation of Ministries and Ministerial portfolios to make them more responsive to the needs for national development. In October 1969, consultants were retained to review Government's administrative machinery and to examine arrangements for training and localisation within the public service. In the light of the consultants' proposals the following changes were made in Government's organisational arrangements:–

(i) A separate Ministry of Education was established with specific responsibility for all educational policy and administration including vocational training.

(ii) The Information Services and Radio Botswana were brought within the Presidential portfolio and incorporated into the Office of the President.

(iii) The Health and Labour Divisions were transferred from the former Ministry of Education and incorporated into the Ministry of Home Affairs which became the Ministry of Health, Labour and Home Affairs.

(iv) The Ministries of Finance and Development Planning have been combined under the direction of the Vice-President; this will facilitate maximum co-ordination of financial administration and economic planning.

10.5 In addition to the changes outlined above, the main office of the Surveyor General's Department was transferred from Mafeking to Gaborone, thus all the major Government departments are now located in Botswana and with the exception of the Geological Surveys Department and the

Centre of Gaborone, 1969

Post and Telegraphs Department which continue to be situated in Lobatse, all senior departments of Government are now located in Gaborone. More recently, and in accordance with the provisions of the new Customs Agreement, arrangements have been made for the establishment of a Customs and Excise Department as part of the Ministry of Finance and Development Planning. The post of Commissioner of Customs and Excise was filled in February, 1970, and the recruitment and training of staff to man Customs Posts at selected airports and border posts will be a priority project in the early phases of the present Plan.

Localisation and Training

10.6 At the opening of the first Session of the Second Parliament in November, 1969, H.E. the President placed special emphasis on the need for a radical re-appraisal of Government's policies in the fields of localisation and training. On the advice of consultants, Government has accepted the need for certain modifications to existing arrangements for personnel administration with the Public Service. These include plans for modifying the role of the Establishment Division of the President's Office into a Directorate of Personnel. The functions of the Directorate will include responsibility for training, recruitment and localisation. In addition the Directorate will include staff development and staff inspection programmes designed to provide comprehensive schemes of service and related training programmes through which the skills of local officers may be upgraded to facilitate more rapid localisation.

10.7 To ensure that the Directorate of Personnel has the statutory powers to perform these extended functions, a new Civil Service Act has been prepared. In addition, subsidiary legislation in the form of Regulations made under the Act have been made to provide for the better administration of Government's personnel programmes with the objective of achieving improved manpower utilisation particularly in respect of highly skilled posts and to effect economies in expenditures on personnel emoluments.

10.8 In this latter connection a comprehensive review of civil service salaries and allowances has been carried out by a Salaries Commission established to rationalise the existing salary structure and to ensure a more equitable distribution of emoluments as between the lowest and highest grades of posts within the service. The extent to which Government is prepared to accept the recommendations of the Salaries Commission will be made known in a White Paper which should be published and decisions implemented during the early phases of this Plan.

10.9 Throughout the early phases of the Plan a comprehensive programme of staff inspections will be carried out in each Ministry to examine staff complements and gradings so as to secure the optimum utilisation of existing staff and to examine the validity of the present vacancy situation. In addition these inspections will aim at a rationalisation of the common cadres of the civil service, i.e. the clerical, secretarial, executive and administrative grades and the development of a separate scheme of service for each cadre showing the entry qualifications, training arrangements, and associated examinations designed to provide balanced career prospects for staff in each cadre.

10.10 Concurrent with the staff inspection review a detailed examination of the staffing arrangements has been carried out to identify posts to be localised and the training and work experience requirements for local officers to move into such posts. A localisation review on these lines will include a re-appraisal of civil service training arrangements to ensure that special emphasis is placed on functional training aimed at producing the skills necessary for successful work performance at the higher levels of the service in local officers. Simultaneously a careful examination will be made of the educational qualifications and work experience of local officers in order to select the most suitable officers for training either in Botswana or abroad.

10.11 To give practical effect to the overseas training component of this programme a re-appraisal of the existing arrangements for awarding bursaries for post-secondary school education and training will be undertaken. The object of such a review will be to ensure that students are assigned bursaries which are directly related to Botswana's high level manpower priorities, having specific regard to the vacancy situation and the requirements of the localisation programme. In addition, arrangements have also been made for the pre-selection of Junior School Certificate and School Certificate students for employment in the Public Service or to pre-service training programmes leading to such employment. Detailed procedural instructions have been developed which provide for a series of job options to be available for school leavers who will indicate their choice of employment which will be taken into account in the pre-selection system. In addition to placements being made within the Public Service students will be assigned

to para-statal organisations and to selected employers in the private sector.

10.12 Notwithstanding the special emphasis which will be placed on localisation, training and re-training during the Second Plan, Government recognises that it is essential to continue to resort to the recruitment and retention of expatriate personnel in those professional posts for which as yet there are no qualified and experienced local officers. The recruitment of highly skilled expatriates must remain, at least in the short term, an essential ingredient to the success of Botswana's development efforts. However, it is also recognised that there is need to ensure that recruitment of staff from overseas, including volunteers, must henceforth only be undertaken when it can be clearly demonstrated that local candidates are not available. To give effect to these arrangements the recruitment unit of the Directorate of Personnel will be expanded so as to provide an effective recruitment department operating through international agencies and utilising technical assistance offers available under bilateral agreements with friendly Governments in Africa and overseas.

10.13 To ensure that the maximum advantage is taken of training opportunities elsewhere in Africa, a Botswana Training Delegation has carried out a detailed study of training and educational facilities in Zambia, Tanzania, Kenya and Ghana. The primary objective of the Delegation was to review civil service training facilities in each country, to determine the relevance of such training to Botswana's training needs, and to secure places for selected Batswana students in appropriate training programmes. Arising from this review, a detailed programme for third country training is being developed in consultation with Ministries to supplement local training provided in Botswana.

10.14 An analysis of the Public Service staffing position as at June 1970 is shown in Table 10–1. Consideration will be given to establishing a Localisation Commission as soon as possible, charged with responsibility for defining specific target dates for the localisation of the various cadres in the Service and of defining the training required to meet the achievements of these targets. A White Paper on this subject will be produced in the first year of the Plan.

Customs and Immigration Control

10.15 Immigration control was formally carried out by the Police but since just before Independence it became necessary to transfer the duties to a separate department under the Ministry of Home Affairs. Because of the great length of Botswana's frontiers and the virtual impossibility, due to lack of staff and funds for staff and facilities to controlling entry at the border, control has always been weak. Reliance was placed either on visitors and immigrants to comply with the law, or on the police to apprehend such persons as did not so comply and were in due course found to be unlawfully in the country. Police posts at border points of entry were not intended, nor could they be expected, to exercise proper immigration control. Moreover, since Independence increasing development has led to an increased volume of traffic into Botswana. Lack of adequate border control is causing concern and steps will be taken to correct this state of affairs. Botswana's sensitive geopolitical situation makes it even more desirable that there should be adequate control of movements of people and goods in and out of the country.

10.16 In addition to the necessity of establishing immigration control, a further need has developed. Botswana is a member of the Southern African Customs Union and as such it is required to enact and administer laws in respect of customs, excise and, more recently, sales duties similar to those in force in the Republic of South Africa. A new quadripartite agreement between the Republic of South Africa, Botswana, Lesotho and Swaziland was signed on 11th December, 1969, and came into effect on 1st March, 1970. This agreement provides for the preservation of the Customs Union established in 1910 but it contains a number of additional provisions which confer rights and obligations on Botswana, Lesotho and Swaziland. In the past the Botswana Government attempted to fulfill the obligations placed upon it by the 1910 Customs Agreement with the assistance of only two fulltime officers in the Ministry of Finance. Botswana relied heavily upon the co-operation of neighbouring governments for the enforcement of legislation and the provision of trade data. The examination and control of goods entering Botswana at a number of entry points was inadequate and would be even more so in future. The establishment of a Customs and Immigration Control machinery can no longer be delayed.

10.17 As a result of the New Customs Union Agreement, the following rights and obligations are of particular relevance:

(a) a new method of calculating the transfer payment due to the three smaller countries whereby customs, excise and sales duty revenues collected within the Customs Union area will be shared, not on the basis of a fixed percentage of a common pool, but in accordance with the annual ratio of each

smaller country's imports and production of goods liable to excise and sales duty to the imports and production of dutiable goods of the Customs Union area as a whole;

(b) the right of the three smaller countries to levy additional duties on goods imported by them from any source for the purposes of protecting infant industries;

(c) the right of the smaller countries to be consulted on customs, excise and sales duty matters affecting them, and the right to petition for adjustments in the common external tariff in order to protect specified major industries in their territories;

(d) the obligation of the smaller countries to apply legislation similar to that enacted in South Africa, to collect customs, excise and sales duties on goods introduced into or produced in their territories, to prevent the export to South Africa of goods the import of which is prohibited in South Africa, and to administer customs and excise manufacturing warehouses.

10.18 For the purposes of benefitting from the rights granted under (a) and (c) above, it is essential that the Botswana Government should collect accurate annual import statistics acceptable to the other three parties to the Agreement. These trade statistics cannot be obtained by any means other than the full documentation of imports of all kinds. The physical size of Botswana, the scattered disposition of the population and the country's long borders make it difficult for trade statistics to be gathered by means of questionnaires or sample surveys. The margin of error which is likely to be contained in import statistics gathered by these means would be great, and the financial loss to the Government caused by an undervaluation of imports would be equally great. Under the new revenue formula a 10% under-valuation of imports could result in a loss of revenue of as much as R500,000. Failure to include personal imports or temporary imports introduced into Botswana by air, road or rail could equally depress the annual transfer payment calculated under the new formula. Accurate trade statistics are also required for general planning and regulatory purposes. Full documentation of trade can only be achieved by creating an establishment at border posts and ports of entry.

10.19 For the purposes of taking advantage of the other rights and meeting the obligations contained in the new agreement it will be essential to establish an administrative machinery and to provide the facilities necessary for the collection of duties, for the administration of the law, and for the control of the movement of goods.

10.20 In the interests of cost-minimisation and in view of the shortage of qualified local persons available for appointment to and training in customs and immigration administration, it is not considered desirable to duplicate facilities and personnel at border posts and along the line of rail. Customs and immigration functions will therefore be performed by Immigration Department staff at border posts.

External Affairs

10.21 On achieving independence in 1966 the Government established a diplomatic corps, but due to budgetary limitations it was only able to open diplomatic missions in four centres – London, Lusaka, New York and Washington. The High Commissioner in London is accredited to a number of European countries, whilst the High Commissioner in Zambia also acts as Botswana's roving ambassador in Africa. The New York mission is headed by Botswana's Permanent Representative at the United Nations. No new expansion in Botswana's diplomatic representation abroad is envisaged during the Plan period. Countries with accredited diplomatic missions in Gaborone include Britain, Nationalist China, United States and Zambia. The negotiation of external aid is the responsibility of the Ministry of Finance and Development Planning.

Information Services

10.22 The Information Services Branch has officers stationed in eight districts – at Kanye, Lobatse, Molepolole, Mochudi, Mahalapye, Serowe, Francistown and Maun. The South East District is covered by staff headquarters in Gaborone, Northern Kalahari and Ghanzi by the officer from Maun, Southern Kalahari by the Kanye officer and Chobe by the Francistown Office. The Information Department produces a daily cyclostyled newsletter on five days of the week, of which 7,000 copies are in English and 4,500 in Setswana. With the introduction of simultaneous translation from English to Setswana the demand for the Setswana edition has been growing fast.

10.23 The Department also publishes a monthly magazine entitled Kutlwano which has an average monthly circulation of 7,000. The magazine has maintained a balance between English and Setswana, but gradually the emphasis is being changed to contain more picture feature stories and special educational series. In addition Kutlwano continues

to provide a forum for exchange of views and ideas in the form of articles and letters. The cost of the production of Kutlwano remains high and the magazine continues to get a Government subsidy, but it is hoped that the recent price increase will reduce its dependence on subsidy. The publication distributes Presidential and Ministerial speeches, tourist brochures and leaflets on specific campaign material such as voters' registration, and elections are also the responsibility of the Information Department. All publicity work for the Government both at home and abroad is handled by this Department. The Press Section provides about 9.5% of Radio Botswana's programmes in the form of local news in English and Setswana, Setswana World news and Radio newsreel on five days of the week.

10.24 During the Plan period the Department intends to increase the news bulletins and radio newsreels for broadcasts from 5 days to 7 days a week. It is also proposed to introduce a weekly newspaper mainly for local consumption in lieu of Kutlwano and to publish a bi-annual glossy magazine mainly for distribution overseas with the object of encouraging tourism and investment in Botswana. By 1971 the coverage of the Information Services will be extended to the new mining towns of Selebi-Pikwe and Orapa. It is planned to establish small Information stations there which will be controlled by the regional station at Francistown.

10.25 It is also intended to recruit additional technical staff particularly in the fields of journalism, photography, art and layout. The Department will continue to upgrade the technical competence of the local staff through in-service crash courses both internally and abroad. The present Headquarters accommodation is inadequate and to cater for the additional staff it is proposed to make extensions within the existing building.

10.26 There is a growing demand for photographs and slides depicting life in Botswana from Diplomatic Missions abroad for publicity in foreign magazines and display at festivals. To meet this need the Department will increase its photographic and visual aids section. This section will compile a series of black and white and coloured photographs and slides. Such a photo library will also be of use to other Government departments in their different campaigns.

Radio Botswana

10.27 Approximately 75% of the population of Botswana is illiterate but they should nevertheless be well acquainted with the policies, objectives and programmes of their government. The only practical means therefore of mass communication is through the medium of radio. There is already considerable evidence that its programmes in English and Setswana have played an important part in mobilising the people towards self-help efforts and creating a strong sense of national identity.

10.28 In addition to regular news, music, drama and discussion programmes, most of which are produced locally, Radio Botswana also serves as an important vehicle for two special projects. The Agricultural Broadcasting Service is a relatively inexpensive method of disseminating agricultural marketing information and serves as an adjunct to agricultural extension work. At present only 2½ hours of broadcasting are devoted weekly to agricultural topics (see paragraph 4.39 under agriculture). A projection of hours of broadcasts a week for each programme is shown in Table 10.

Projected broadcasting hours a week 1970/71

	1970		1971	
	Hrs.	Min.	Hrs.	Min.
News & Current Affairs	10	45	15	45
Features	13	15	18	15
Education	13	30	20	–
Music	35	–	35	–
Agriculture	2	30	3	–
Labour Affairs	–	15	–	30
Community Development	3	30	3	30
Miscellaneous Entertainment	12	15	17	15
	91	0	113	15

10.29 A special broadcasting service has been developed to supplement and improve Primary and Secondary School teaching. The Schools broadcasting unit in the Ministry of Education now provides 13½ hours of broadcasting a week. Expansion has been slow due to lack of facilities and staff. Repetition of lessons has been found essential since some schools with large classes have only one radio set and afternoon broadcasts have been necessary for those who do double sessions. To achieve a target of 20 hours a week of schools broadcasting with minimum repetition of lessons it is planned to get the services of more script writers, increase the number of lessons and also procure more radio receivers.

10.30 Radio Botswana increased its broadcasting time from 49 to 75 hours in 1969. It is planned to achieve a target of 113 hours of broadcasting by

1971 after which the situation will be reviewed. The present studio space is inadequate and to achieve the above target, it is proposed to provide additional studio space in 1971. More staff will be recruited and it is intended to improve their training on the job and also to send more officers for in-service courses abroad. Improvement in the competence of the staff will improve the quality of the programmes. The transmitters used by Radio Botswana now are insufficiently powerful to ensure a minimum level of reception in many areas and in some places the broadcasts are not heard at all. To improve reception and to get nation wide coverage it is planned to supplement the 3 small transmitters now in use. Consultants will be engaged to advise on how to achieve nation wide coverage in the most economical way.

Labour Branch

10.31 Labour in Botswana is as yet unorganised and it would be fallacious to speak of the existence of any form of "Labour Movement". The fact that there is still a substantial pool of rural underemployed people willing to accept work at low wages gives a special character to the shape of workers' organisations. Efforts to protect workers' interests vis-a-vis their employers must take this situation into consideration. The employers, too, are not yet organised for the purpose of influencing labour relations. However, as industrial development gains momentum during the plan period it will become increasingly important if good labour relations are to be maintained for both sides of industry to become so organised to create and maintain labour harmony. Employers and workers will be advised and encouraged to draw up recognition agreements setting out the rights and obligations of both the employer and the union. Such agreement should play a large part in subsequent negotiations and assist in establishing mutual trust and co-operation between the two interest groups in industry.

10.32 To assist the respective groups to work together towards the creation of an amicable climate of industrial relations Government has taken steps to establish the requisite legal framework. Three new Acts passed in 1969 are particularly important:

(i) *The Trade Union Act:* this Act requires all existing unions to re-register if they are to gain the benefits and protection extended by this legislation. If a union has registered and has a membership of at least 25% of the labour force in the industry then that union is recognised as the negotiating body on behalf of all employees in the industry.

(ii) *The Trades Disputes Act:* which provides t machinery for the settlement of labo disputes.

(iii) *The Regulation of Wages and Conditions Service Act:* gives the Minister power to s up Wage Councils for the purpose making recommendations concernin wages and conditions where workers a unable to organise themselves.

10.33 During the Plan period it will becom necessary to pass new legislation to replace th current Botswana Workers' Compensation Pro clamation issued in the 1930's. This provide grossly inadequate cover and lacks the necessar safeguards for workmen in Botswana's developing industrial sector.

10.34 Statistics on union membership are no reliable and are somewhat meaningless in the present situation where unions have yet to register under the new Act. However some indication of the number of unions and the membership form can be obtained from the statistics relating to the period immediately prior to the new Act. There were then 17 registered unions. However, of these only 4 could be considered to be anything more than a paper organisation. Membership of the active unions was estimated to be about 1,300 or less than 5% of the total number in wage employment.

10.35 To cope with the growing volume of labour administration work that will accompany mining and industrial development provision has been made in this plan to recruit additional labour officers. New officers will be posted to Mahalapye, Selebi-Pikwe, Orapa and Ghanzi. The stationing of these officers in the centres of employment will enable labour inspections to be carried out more frequently, render the routine labour law enforcement function more effective and assist in the production of regular and more accurate labour statistics. As explained in Chapter II in the section on Wages Policy, it is not in the long term national interest for Government to introduce comprehensive minimum wage regulations. It will therefore be doubly necessary to have a strong and effective Labour Branch to prevent the exploitation of labour. Labour officers must be very active in ensuring that employers and exmployees fulfil their usual contractual obligations and that labour is treated fairly.

Law Reform and the Administration of Justice

10.36 Government is aware of the need to keep the private law of Botswana, Roman/Dutch as well as customary, in a healthy condition and in accordance with modern needs, circumstances and

thought. To facilitate the public discussion of possible measures of reform the National Assembly has appointed a select committee to consider proposals for law reform and advise on them to the National Assembly. Government will consult this select committee on its own proposals for law reform and take account of its report to the National Assembly on matters raised by Members of Parliament or the public.

10.37 Customary law, regulating as it does the legal relations of the majority of persons in Botswana, is to-day a major component of the legal system. But its unwritten nature, making its content both uncertain and difficult to ascertain, severely restricts the role it can play in legal development. Traditionally, the unwritten character of customary law gave rise to few practical difficulties, as tribesmen subject to it were familiar with its rules as a result of instruction received during periods of initiation and subsequent attendance at *kgotla*. At the same time, social developments necessitating changes in the law came about sufficiently slowly for it to accommodate itself to them without friction. Today these conditions are absent: few tribesmen are familiar with customary law as new patterns of work prevent their regular attendance at *kgotla*, and parts of the law itself are confused as a result of attempts to accommodate it to more rapidly changing situations. Another development which must be considered in this context is that customary law is increasingly applied in the High Court and the subordinate courts by judges and magistrates who have no direct personal experience of the customary legal systems. These considerations have led government to initiate investigation of the customary law, with the dual purpose of recording in written form those parts of it which merit preservation and of ascertaining those areas in which legislative reform is required.

10.38 Considerable progress has already been made with a programme of investigating and recording the customary law. Since November, 1968, the customary laws relating to domestic relations, land and succession to property have been systematically examined and recorded. These areas of the law were selected for early investigation on the ground that they are ones in which the customary law is likely to remain in force in future. They are also areas considerably affected by changing social and economic conditions; another factor making their investigation a matter of urgency. Three principal sources have been used in these investigations: the available works of social anthropologists and other scholars writing about customary law; the case records of customary courts; and discussion with tribesmen familiar with the practical operation of customary law.

10.39 Government plans a dual programme of reform following the completion of the investigations referred to. As an immediate measure to assist the public and the courts, narrative restatements of the customary laws of domestic relations, land and succession to property of the eight tribes investigated are to be published in Setswana and English. These restatements will be available to the public and the courts as a guide to the substance of the customary law in the areas concerned. At the same time, a programme of legislation is to be proposed with a view to curing some of the defects revealed in the course of the investigation. Areas in which notable confusion apparently exists concern the required formalities of a customary marriage, the institution of guardianship and the maintenance of women and children. Such legislation, would supercede customary law in the areas to which it relates.

10.40 Over the Plan period, further investigation is to be undertaken in connection with a number of outstanding problems associated with the customary law. The most pressing of these problems include: the establishment of suitable machinery for keeping under review the customary law as published in the restatements; the possibility of achieving unification in certain areas of the law; and the general relationship between customary law and the common law in areas touching immediately upon development such as contract, delict and the law of property.

10.41 As a counterpart to the programme of ivestigating and recording the customary law, a report of a country-wide survey made of the Customary Courts was submitted to government in June 1969. It drew attention to a number of defects in the operation of the traditional system, the more serious being:

(a) failure to enforce the lawful orders of the Court;
(b) failure bring fines to account;
(c) failure to maintain adequate records;
(d) failure to observe the rights of the accused and the right of appeal;
(e) the suppression of case records;
(f) the exceeding of warranted jurisdiction.

10.42 It is intended that the existing system should be preserved for the immediate future; it will however be necessary to improve:

(a) supervision at district level;
(b) the quality and training of Presiding Officers and of their Court staff.

There is little inherently wrong in the basic structure of the Customary Courts that cannot be put right by enforcement of existing legislation with necessary emphasis on Section 10 of the Constitution "Provisions to Secure Protection of Laws", by a new approach to recruitment and conditions of service, and by training. The Chieftainship (Amendment) Bill 1970 will go some way towards facilitating the removal of the individual Tribal Authority or Headman who shows himself incapable or unfitted for the exercise of his judicial powers. In addition the African Courts (Amendment and Supplementary Provisions) Act 1968 provides amongst its many provisions for the appointment of a Customary Courts' Commissioner who with a small staff would gradually relieve the District Administration of the supervisory functions for which it is responsible at present. Whilst excluding the more serious offences from the jurisdiction of the Courts, and offences for which there is no Customary equivalent (e.g. contravention of prohibitions relating to precious stones) it provides for the introduction of powers to enable a Court to administer the provisions of "any written law" thereby paving the way to the future primary Court and a single judicial system.

10.43 Botswana's limited manpower makes difficult any very rapid transition, but as an interim measure it is intended that the training of Lay Magistrates will be commenced in the near future. There are those whose long experience in the traditional Court together with a natural aptitude would appear to fit them for greater responsibility than at present. Furthermore, the number of Courts presently warranted could be reduced without undue hardship, and government is engaged on a study to re-allocate such warrants.

Police:

10.44 The Republic of Botswana is one of the few independent states in Africa which has no standing army or military establishment. It therefore falls on the Botswana Police Force not only to carry out its statutory duties of preserving the peace and preventing and detecting crime, but also to maintain the security of the nation. The Force must be of adequate strength and trained to a high pitch of efficiency to be able to cope with all threats to security and to deal with any national emergency. For this purpose it must be trained to perform in a para-military role as well as operating as a conventional Police Force.

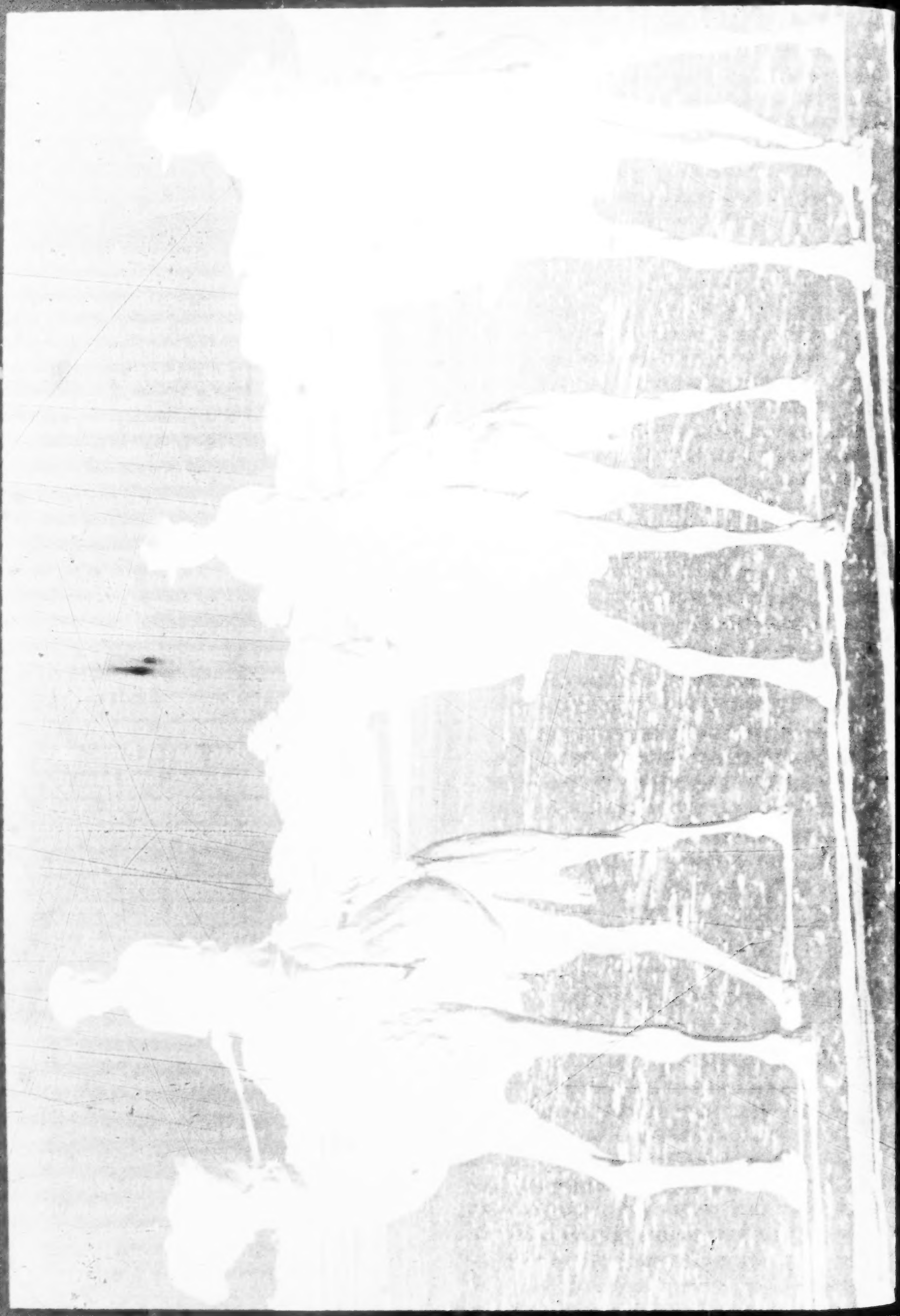
10.45 The development of new townships, the exploitation of the country's mineral resources, the establishment of new industries and commercial enterprises, the expansion of tourism, the growth in population and the concomitant increase in sophisticated crime will inevitably add to the burden of the Police Force and will necessitate an increase both in manpower and in the establishment of new stations and the modernisation of existing sub-standard Posts.

10.46 The expansion of the agricultural industry as a result of the development of the water resources and the discovery of mineral wealth in remote areas, the projected new all-weather route to Zambia via Kazungula, will all undoubtedly open up new centres of population. But while it is true that at present certain parts of Botswana are sparsely inhabited, it is nevertheless essential that adequate police coverage be given to the whole country so that the rights and property of those members of the community resident in remote areas as well as those living in larger settlements are also protected. It is not possible to provide such coverage with the present authorised establishment and the limited number of existing widely dispersed police stations.

10.47 Compared with other independent States in Africa, Botswana is under-policed: e.g. the ratio of police per square mile in Zambia is 1:35, in Malawi 1:14 and in Botswana 1:211. The populations of the aforementioned countries are, of course, much larger than that of Botswana but in addition to their Police Forces, both have standing armies and military establishments which are available to cope with internal and external threats to security.

10.48 New police stations and the requisite housing for police personnel are already under construction at Seronga to provide coverage of Ngamiland east of the Okavango River; at Kavimba/Kachikau which will ensure more efficient policing to the western Chobe District which is becoming increasingly popular with the expansion of tourism and game safaris. Plans are well advanced for building a police station at Thamaga, which has a population of 10,777 (1964 census), and work will also commence shortly on Special Branch offices in Gaborone and at Lobatse, both of which are urgent requirements.

10.49. In order to enable the Force to operate effectively and to give an adequate service to the public, a new District Police Headquarters will be built at Mahalapye which is an important and expanding centre on the line of rail where the Rhodesian Railways maintain extensive marshalling yards. In addition to providing a police



A camel patrol of the Botswana Police.

station for Mahalapye township the new building will serve as District Headquarters for the whole of the Tuli Block and for Martins Drift, Machaneng and Baines Drift Police Stations. New police stations will also be constructed during the Plan period at Nojane and Kalkfontein in the Ghanzi District which will assist in control of the frontier with South West Africa and in the detection of illegal immigrants and game poaching offences; at Tonota which is growing rapidly and increasing considerably in importance as a result of the Shashe Complex project; at Gomare, in north-west Ngamiland, where a settlement of some 3,500 Angolan refugees has been established, and which will also serve Sepopa and Nokaneng; at Moshupa in the Ngwaketse District, population 12,892 (1964 census), and at Bokspits in the south-western Kgalagadi on the border with South Africa. Existing and entirely inadequate sub-standard buildings serving as police posts and living quarters at Olifants Drift, Bobonong, Werda, Rakops and Tshane will also be replaced by new police stations. Offices for District Special Branches will be built at Serowe, Palapye, Mochudi and Kanye, where no accommodation exists at present. Provision for a police station at Selebi-Pikwe has been included in the Shashe Complex Project.

10.50 No country can develop its resources or maintain its stability unless it has adequate means at its disposal to preserve law and order and the security of the State. These requirements can only be achieved if the Police Force is properly equipped, highly trained and of sufficient strength to serve all members of the community and to carry out its multifarious duties throughout the entire area of the country.

10.51 The present authorised overall establishment of the force, including Administrative Headquarters, the Uniformed Branch, the CID, Special Branch, Police Mobile Unit, Communications, Training and Clerical Branches is 1,090. To staff proposed new stations, provide additional personnel for the CID and improve police services, both in developing areas and in the more remote parts of the country, it is anticipated that an increase in establishment of 16% will be required, phased over the Plan period. This would bring the effective strength of the Force up to 1,265 men. The total annual recurrent cost of the Force is estimated to rise from R1,083,000 in 1970/71 to R1,367,000 at the end of the Plan period.

Prisons

10.52 By the end of 1968 there was approved accommodation for 598 prisoners in Botswana. Although the incidence of crime is relatively low it is estimated that the present crowded prison facilities will have to be expanded to accommodate 1,000 prisoners by 1974/75. Since the prison population cannot be evenly distributed among the prison facilities available due to the prohibitive cost of transferring prisoners from outlying areas to the larger prisons, some prisons are under-established while others are frequently overcrowded.

10.53 It is very desirable not only to alleviate over-crowding in prisons but also to ensure that young offenders and other unsophisticated law breakers do not come into contact with hardened criminals. The most economical way of achieving these objectives is by establishing a young prisoners wing at Gaborone and prison camps for first offenders in centrally situated areas in the country. The capital cost of these camps will be roughly half that of providing conventional facilities and the recurrent costs would also be lower. The camps will be sited either adjacent to Agricultural Department farms or in other areas where crops can be grown for sale (see Project HA 08). The camps will be designed to assist in the rehabilitation of the prisoners through the acquisition of simple skills and at the same time enable productive work to be done. It is also proposed to carry out much needed improvements to existing prisons. Three prisons – those at Mahalapye, Molepolole and Maun, are in such a state of disrepair that it is desirable to discontinue their use and if possible replace them with new structures.

10.54 The improvement of the prison service outlined above will give rise to increased recurrent expenditure. At present the annual recurrent expenditure is R191,000; this is projected to rise to R280,000, representing an average annual increase of 10%.

Statistics

10.55 Reliable basic statistics are a prerequisite for efficient administration and the detailed planning of development at all levels and in every sector. Government therefore established a central statistics office (C.S.O.) soon after independence to provide and analyse statistics required by government departments, businesses and international organisations. At present there remains a serious lack of reliable statistics in many fields and it is government's intention to rectify this situation during the Plan period. The staff of the C.S.O. has been steadily strengthened since its creation and its structure recently reorganised to eliminate past weaknesses. Its establishment now includes five professional statisticians.

10.56 The programme of statistical work will cover three fields: basic statistics of a general nature

which have a wide range of uses and, in particular, will establish national bench-marks; current statistics in many areas which have a limited number of uses initially, but will provide in future the necessary time series essential for planning and projections, evaluation of past development policies and day to day administration; and finally particular investigations to provide information for a specific purpose. In each of these fields the maximum use will be made of information already available as a by-product of administrative procedures or from the normal activities of other departments. In these cases where the necessary data is not or cannot be obtained from existing sources particular surveys or enquiries will be undertaken by the C.S.O.

10.57 The programme for basic statistics comprises a population census; a livestock census; a survey of all business activities; and a manpower survey. The population census is planned to be taken in August/September 1971, but preliminary work will commence early in 1970 (See Project DP02). In addition to providing an accurate count of the total population and its distribution, the census will be designed to provide other necessary basic data. In particular it is planned that information will be obtained on the education and occupation of the population: the age and sex structure of the population; rates of growth to enable future projections to be made more accurately; absentee migrant labour; and, finally, information on housing in certain areas.

10.58 A livestock census is planned for September 1970 in which a complete count of all livestock will be attempted. The project (AD06) is intended to provide information on the total number and distribution of all different types of livestock and limited age and sex data. In addition, it is planned to obtain information on water supplies available for livestock. A very high priority is given to this project because of the importance that livestock, particularly cattle, play in the economy of Botswana, and the resultant need for information to develop the cattle industry to its maximum.

10.59 A sample survey of agriculture in both the traditional and freehold sectors was carried out in 1969. The survey in the traditional areas was the culmination of a programme directed by an F.A.O. statistician over three crop seasons and is considered to provide adequate basic agricultural statistics for this sector for use until the next survey, which will be held around 1974. It is intended to carry out a further census (see Project AD06) among freehold farmers in 1970 to check and improve on the work undertaken in 1969.

10.60 Agriculture is at present the predominant sector in the national economy in terms of numbers of establishments, numbers of persons engaged in, and in contribution to the national income. It is for these reasons that priority has been given to the collection of basic statistics and the development of a programme for current statistics which will be described below. There are, however, other sectors of the economy which are of considerable importance at present and in which development may be relatively more important than in agriculture. For these reasons a programme is under way to collect basic statistics about all economic units other than farming. A provisional listing of all such establishments and enterprises, together with very limited basic information for each one was completed by the end of 1969. During 1970 the listing will be checked and corrected and additional basic information concerning firms collected. Thereafter, the programme will involve recurrent up-dating. The information thus collected will provide, together with that from the agricultural surveys, a complete analysis of the structure of Botswana's business activities and, in addition, serve as a basis for the collection of many types of other statistics.

10.61 It is anticipated that the development of Botswana will result in very great changes in the pattern of employment and in the numbers employed. To plan for a logical training programme and to measure effects of future developments on employment it is desirable to obtain bench-mark data on present employment. An enquiry will therefore be conducted among all employers to obtain the necessary basic statistics of the labour force during 1970 and 1971. In particular, it is planned to survey employers at the same time as the population census to enable a check on employment data provided from both the employer and the employee. A further detailed survey of employment will be carried out around 1975 with regular, more limited, enquiries in between the major enquiries.

10.62 It is intended to develop considerably the collection and publication of current statistics. The highest priority is to be given to the collection of statistics of external trade. Reliable trade statistics are required, in particular, for the calculation of the formula for the division on the common customs, excise and sales tax revenue pool in terms of the Customs Agreement between Botswana, South Africa, Lesotho and Swaziland, and also for the planning of the development of industrial activities. Previous attempts to collect trade statistics have been unsatisfactory and past estimates of trade are likely to be subject to considerable errors. Projects for the control of the movement of people and goods (HA09 and MF01) have been prepared in such a

way that reliable statistics of trade for all purposes will be available once these projects have been implemented. In addition to statistics of trade, border control established under these projects will enable the Central Statistics Office to obtain data for the preparation of comprehensive migration and tourism statistics.

10.63 With the exception of the programme for current agricultural statistics, the development of current statistics will be financed from the recurrent budget of the Central Statistics Office and the pace of development for each particular series will depend upon the priority it is given and the resources that are available to the office. However, it is planned that by 1975 the minimum necessary series in all these fields would have been established.

10.64 In addition to the basic and current statistics on a national basis referred to above it is planned that the Central Statistics Office should carry out enquiries into specific areas or problems possibly at the direct request of other departments. In this connection a series of studies into household income and expenditure patterns have been carried out in a number of centres during the past two years. This project has been included in the Development Plan as item DP01 and is due to finish towards the end of 1970. When completed these surveys will provide information for the construction of a retail price index and valuable information on the variation in expenditure patterns between different income groups and different parts of the country. For the Department of Agriculture a survey in detail of the social and agricultural aspects of a small rural area is to commence in January 1970. It is planned that within the capabilities of the C.S.O. a number of similar studies in depth will be undertaken in the next five years in both rural and urban areas.

10.65 As described above, there will be an annual sample survey of agricultural production in the traditional areas and an annual census of freehold farmers. It is also planned to carry out an annual census of production in the other productive sectors of the economy (i.e. mining, quarrying, manufacturing, electricity and water, and construction). The census of production will be undertaken in conjunction with an annual enquiry among all businesses to obtain the necessary data for the regular production of national accounts. It is intended that the first regular collection of these statistics will be undertaken early in 1970 in respect of the year 1968/69.

10.66 The C.S.O. already carries out a programme for current statistics of health, retail prices, government income and expenditure, banking, transportation and income tax. In addition to this, a comprehensive programme for current educational statistics has been developed by a U.N.E.S.C.O. Education Statistician; this work will be taken over by the C.S.O. on his departure in the second half of 1970.

10.67 The progress made so far in the compilation of these various statistics varies from type to type; the considerable development over the Plan period proposed above should ensure that by 1975 basic minimum essential statistics should be available for a wide range of purposes.

Chapter XI – Regional Development

Local Government Administration

11.1 The history of local government in Botswana has until recently been almost entirely associated with the Chieftainship. Chiefs were both the national and local leaders. As the tribal organisations became more complex and assumed new functions which were not simply aspects of tribal customary law, and as the needs of a settled community expanded, the Chiefs acquired additional responsibilities which in a society less firmly based on tradition and tribalism would long before have passed to non-traditional, specially-created organs of local government.

11.2 Although tribal councils functioned effectively in some districts, the system essentially remained one of personal rule by the Chief closely associated with and aided by the Central Government, acting through District Commissioners. It became apparent that Botswana's rapid constitutional advance at the centre should be matched by an efficient and democratic system of local government.

11.3 In November, 1964, the Legislative Assembly agreed to the reform and reorganisation of local government. The policy was, in essence, to set up elected Councils with executive powers, creating a non-racial, representative, and responsible system of local government as a natural development from tribal administration. Botswana was divided into nine District Council areas and three Town Council areas. Following the local government elections in June 1966, based on universal adult suffrage, the new Councils came into being on 1st July, 1966. Elected Councillors form the substantial majority in all Councils, but provision exists for the appointment of some nominated members. With the National Elections of 1969, the life of the Local Councils was equated with that of Parliament.

11.4 The position has therefore been reached where in each area of the country there is a democratically elected body with important local government functions and a vested interest in local development, able to contribute towards the general progress of the country by its ability to mobilise self-help in its various forms and to administer local projects of economic and social betterment.

Regional Development

11.5 In pursuance of Government policy to encourage Local Authorities to undertake development in their own areas, the Councils prepared, with assistance from Central Government, five year development plans covering the period 1968 to 1972. In the ensuring years, Local Councils implemented these plans to the best of their ability; during 1969 the last three years of the plans were revised, resulting in new three year plans covering the calendar years 1970 to 1972. These plans are regarded as an integral part of the National Development Plan, 1970/75. The revision of the Francistown Town Council and North East District Council Development Plans have been delayed due to the negotiations with the Tati Company over the Tati Concession. Now that these negotiations have been finalised, the Councils will proceed with the preparation of new Development Plans including plans for the land acquired from the Tati Company.

11.6 Local Council's development proposals in these plans cover three major areas; primary education, water resources, and health. The concern for improvement of social services at the local level is clearly reflected in their proposed projects: Table 11.1 below indicates the distribution of development funds to sectors; Table 11.2 and 11.3 summarise the Council's estimates of revenue and recurrent expenditure and also reflects the priorities.

11.7 The improvement of primary educational facilities is the greatest concern for the District Councils. (See Primary Education, Chapter 9). The improvement of water resources and health facilities are next in priority. The District Councils plan expenditures of approximately R320,000 for development projects in 1970. Of this total, R200,000 (62.5 percent) will be allocated to educational projects. The funds allocated for water and health projects amount to R73,000 (23 percent) with R54,000 for provision of water and R19,000 for health facilities. Government has encouraged, and will continue to encourage, Councils not to over-emphasise primary education and to spend more on other vital services, especially on the improvement of water supplies, and public health measures.

11.8 The Town Councils (Gaborone and Lobatse) expect to spend R400,400 for development projects in 1970. By far the greatest concern is the expansion of low-cost housing. Government will raise loan money for the Town Councils in the Plan period for the construction of low-cost housing in the townships. In 1970/71 it is proposed to construct 150 low-cost houses in Francistown, 250 in Gaborone and 100 in Lobatse. (See project PW15). Gaborone Town Council will receive R250,000, Lobatse R100,000 and Francistown R150,000 for housing projects in 1970. In the case of Lobatse it will be necessary to acquire new land for further housing projects. The Francistown Town Council will acquire a large block of land south of

the existing township from the Tati Company and part of this will be used for low-cost housing. Education is the second priority of the Town Councils and the Gaborone and Lobatse Town Councils have planned to spend R23,000 on this sector.

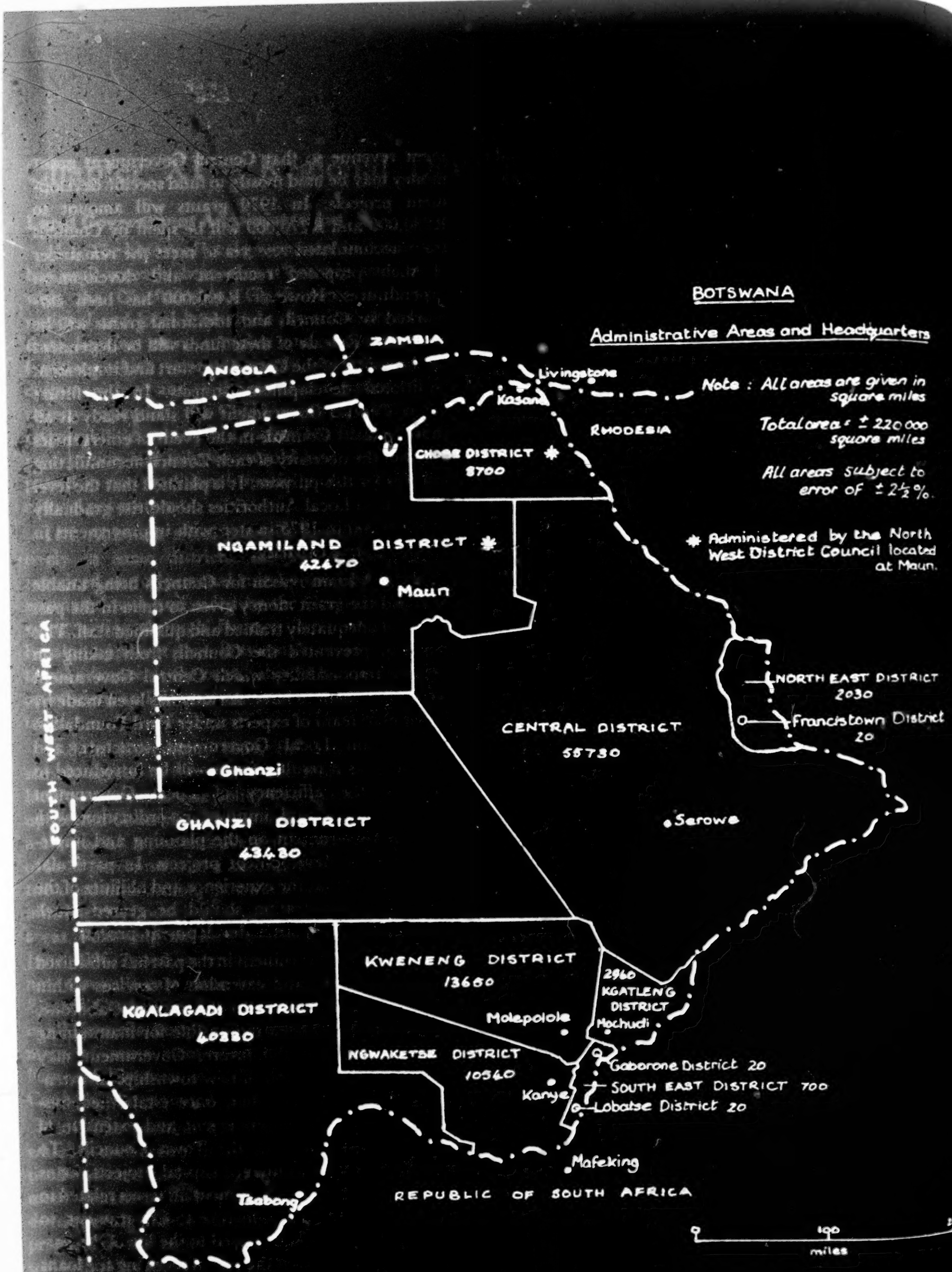
11.9 Expenditures for educational purposes absorbs the largest portion of the recurrent budget for both District and Town Councils. In 1970, the Local Councils expect to spend R1.5 million (67 percent), of R2.25 million total recurrent expenditures, on education, with R1.2 million (55 percent) covering teachers' salaries and associated provident fund contributions.

11.10 Income accruing to the Local Councils will be approximately R2.0 million in 1970. 78 per cent of their expected revenue will be provided from rates and local government tax (53 per cent) and school fees (25 per cent). The remaining 22 per cent will be obtained from rentals, fees and issuance of licences, compensation from concessions, and royalties. The North West District Council expects to raise over R74,000 from these latter sources which amounts to 40 per cent of their total income. The other District and Town Councils estimate that these latter sources will provide less than 20 per cent of their total income. The District Councils in total plan to incur expenditures of just over R2 million with income amounting to R1.5 million. The R0.5 million deficit will be met from two sources; (1) Central Government grants and (2) reserves accumulated by the District Councils in past years. Several Councils have accepted the principle of charging consumers for water. Income from this source is expected to be R14,000 and should increase over the Plan period as the principle becomes more widely accepted.

11.11 Previous to this financial year Central Government grants were given for five different needs – (1) teachers' salaries, (2) development projects, (3) training, (4) destitutes, and (5) capitation. The total grants for the District and Town Councils were well in excess of R300,000 per annum; however, these grants were greater than the Councils could use and over the years this money was accumulated by the Councils as reserves. As of January, 1970, these reserves amounted to R580,000. The rationale given by Councils for holding these large reserves was to provide for emergency situations which might arise. With the severe shortage of funds for national development, Central Government cannot continue to make grants which, instead of being used, are placed on deposit with commercial banks. It is intended that, as far as possible, Councils will attempt to meet normal recurrent expenditures from local government revenue so that Central Government grant money may be used mostly to fund specific development projects. In 1970 grants will amount to R230,000 and R270,000 will be spent by Councils from accumulated reserves to meet the remainder of their proposed recurrent and development expenditures. However R406,000 has been earmarked for Councils and additional grants will be available: Release of these funds will be dependent on the ability of the Councils to start and implement additional development projects. In the future future Central Government will stand ready at all times to assist Councils in the event of emergencies to avoid the necessity of each Council accumulating reserves for this purpose. It is planned that the level of grants to Local Authorities should rise gradually to R500,000 in 1975 in step with improvements in administrative capacity.

11.12 A main reason for Councils being unable to spend the grant money given to them in the past is lack of adequately trained and qualified staff. This has also prevented the Councils from taking on greater responsibility which Central Government would like them to have. A study has been made by a two man team of experts under Ford Foundation auspices on Local Government structure and practices; as a result reforms will be introduced to improve the efficiency of Local Government administrations and improve co-ordination with Central Government on the planning and implementation of development projects. In particular it is intended that the experience and abilities of the District Administration should be geared much more closely to district development process.

11.13 The Government in the past has subsidized the development and extension of services within the modern townships; in the case of Gaborone, Government has been responsible for maintaining these services. In the future, Government may assist with the creation of new townships or extensions to existing ones, but, once established, responsibility for the improvement and extension of services must rest with the Town Councils. To enable townships to finance capital projects, loans will be provided by Government on terms related to the market cost of loan finance to Government, to be repaid over periods related to the life of the particular assets. To meet the cost of servicing the loans and maintaining the services, Councils will be encouraged to raise adequate rates on property. The existing rates are being studied and a new rating structure will be introduced in 1971. This new structure will be designed inter alia to penalise severely the holders of unimproved land, thus discouraging land speculation and transferring to the state a reasonable share of such speculative profits as do arise.


BOTSWANA
Administrative Areas and Headquarters
Note : All areas are given in square miles
Total area : ± 220 000 square miles
All areas subject to error of ± 2½ %.
* Administered by the North West District Council located at Maun.
ZAMBIA
ANGOLA
Livingstone
Kasane
RHODESIA
CHOBE DISTRICT *
8700
NGAMILAND DISTRICT *
42470
Maun
NORTH EAST DISTRICT
2030
Francistown District 20
CENTRAL DISTRICT
55730
Ghanzi
Serowe
GHANZI DISTRICT
43430
KWENENG DISTRICT
13650
2960
KGATLENG DISTRICT
Mochudi
KGALAGADI DISTRICT
40230
Molepolole
NGWAKETSE DISTRICT
10560
Gaborone District 20
SOUTH EAST DISTRICT 700
Kanye
Lobatse District 20
Mafeking
Tsabong
REPUBLIC OF SOUTH AFRICA
100
miles

11.14 Local Council development planning machinery may be represented as follows:

Ministry of Local Government & Lands	Minister Permanent Secretary Principal
Local Council	Chairman Elected Members Nominated Members
Council Planning Committee	Council Chairman Council Secretary Chairman of the Main Committee District Commissioner Treasurer Senior Member of Community Development
Village Development Committee	Local Councillor Local Headman 1 or 2 Elected Members Community Development Assistant

The District and Town Councils fall under the responsibility of the Ministry of Local Government and Lands. The Ministry approves the development plans and annual budgets of the Councils and determines the Local Government grant in conjunction with the Ministry of Finance and Development Planning. At the village level the Village Development Committee (see Community Development, Chapter IX) identifies development projects that are required for the village. These are related to the Council planning committee which examines their proposals. This committee is a co-ordinating committee comprised of representatives from Central Government, Community Development, Local Government and Tribal Administration. At this level the Development Plan is prepared and then submitted to the Council and Ministry of Local Government and Lands for approval.

11.15 The planning system is one of participatory democracy reaching down to the grass roots. The objective is to involve villages actively in the development process. The policy is one of self-help and self-reliance, backed by financial incentives and technical assistance. The villages are encouraged to make voluntary contributions for village projects such as bricks, labour and through the provision of matching finance on a rand for rand basis from the Council. Technical assistance is available through the Community Development Assistants (see Community Development, Chapter IX) who work hand-in-hand with the villages.

11.16 The Government recognises that there is a need to establish District Development Committees to co-ordinate the work of various agencies in the district with a view to promoting its development; to serve as a planning body for the district and to integrate the District Council Plan into the National Development Plan as it applies in the district as a whole. The Committee would also be responsible for the implementation of the Plan; thus, it watches the progress of district projects, anticipates and analyses obstacles and problems and finds local solutions to the latter where possible. The existence of this body will in no way derogate from the authority of the District Council. The latter will continue to be responsible for the formulation of its own Development Plan, and in this will have the assistance of the District Commissioner, and other Central Government officers. The District Development Committee will afford the opportunity to avoid unnecessary duplication between the efforts of the Central Government Ministries and Departments on the one hand and the District Council on the other.

11.17 District Development Committees will be established as soon as possible, and will typically have the following membership: District Commissioner (Chairman); all heads of Central Government Ministries/Departments represented in the district; representatives of the District/Town Council; the Chief or his representative; a representative from the private sector.

Outline of Local Council Plans

(*a*) *Francistown Town Council*:

11.18 Francistown, which is one of the three main commercial centres in Botswana, is located in the North East District. The population of Francistown is estimated at 13,200 in 1970, and with copper mining developments at Selebi-Pikwe and Matsitama, Francistown is likely to develop into a hub of commercial and industrial activity, as a regional centre for the Shashi Complex. The population in 1975 is projected to be 18,600 and 26,000 in 1980, equivalent to 7% growth per annum.

11.19 To facilitate the anticipated rapid expansion of Francistown, Government acquired 3,500 acres of land adjacent to the southern boundary of the present township and the Town Council purchased land to the north. The northern land – The Dumela Industrial Site – will be used for industrial expansion, which presently include 83 acres of rail-serviced land and 16.5 acres of non-rail serviced land. The total estimated cost of developing these sites is R277,000. The revenue from the sale of these sites will cover the development cost and provide addition finance to develop further industrial sites when demand warrants. A portion of the land in the south will be available for non-rail serviced light industry; however this land

will be used primarily as a residential and commercial extension of the present township. The housing here, as in all townships in the future, will be planned in such a way that low, medium, and high cost houses are mixed to avoid rigid social or racial divisions. The new area should alleviate the severe shortage of housing in the present township and surrounding communities. The commercial activity in the new extension will be focused around a large, integrated complex, including a hotel, shops, offices, etc., being planned by Anglo-American Corporation and jointly financed by Anglo-American and the Tati Company. Construction of this complex is expected to begin early 1971 and be completed before the end of 1972. The commercial shops in this new extension will be similar to those in the present township catering for residents in the township and tourists.

11.20 Consultant town planners will complete a master physical development plan during 1970 covering the short and long-term developments of the enlarged township. The master plan will provide plans for the renovation of the communities which at present are extremely over-crowded with housing in a highly delapidated and slum-like condition. To alleviate the over-crowded conditions, it is the intention of Government to resettle a portion of the people living in these communities in the new extension. The extension of sewerage, roads, and electricity and other services will be initially financed by Government loans to the Council, and rates and tariffs will be levied to provide for loan repayment. The development of water and power supplies will be planned on the assumption that these will be available from the Shashi dam and power station by the end of 1973.

11.21 Central Government may extend and improve the airfield at Francistown between 1970/ and 1975 to meet increased traffic generated by mining development and tourism. Water reticulation will be extended over the plan period. Mater Spei Secondary School will be expanded during the first three years of the Plan period. (See projects PW11, ED01 and WB16). R1.5 million has been allocated in this Plan for low cost housing during the Plan period, but finance has still to be raised for the period 1971/75. (See project PW15).

(*b*) *Gaborone Town Council*:

11.22 Gaborone, the capital of Botswana, is one of the three main commercial centres of the country, serving population centres such as Mochudi, Molepolole, Ramotswa, and Tlokweng. The population of Gaborone is estimated at 14,200 in 1970 and is projected to reach 18,000 in 1970 and 22,600 in 1980, equivalent to an annual rate of expansion of 5 percent per annum.

11.23 The Town Council in the past has been hampered in its efforts to provide the services required by the population due to a lack of technical and administrative resources. They have had also to rely mainly on Central Government and the Gaborone Water and Electricity Unit in providing the necessary funds to extend services to its residents. Whilst it is reasonable that in the creation of the new Capital, grants should have been made available to meet initial establishment costs of services such as roads and sewerage, the Government proposes that from 1970 onwards finance necessary for the improvement and extension of services should be provided on a loan basis with repayments related to the life of the particular assets and interest rates which reflect the market cost to Government of loan finance. Studies are now being conducted on how to provide Council with the required annual revenue through a revision of the tax and rating structure to enable the Council to take on these responsibilities. Under the current system the Council revenues will be insufficient to repay loans and meet running costs in respect of the capital projects that will be undertaken.

Capital expenditures are estimated for

1970	R 286,500
1971	289,000
1972	470,500
1973	464,000
1974	438,500
	R 1,948,500

The largest capital expenditure (R1.6 million that the Council will incur over this period will be for the extension of sewerage and maintenance and improvement of roads. These services were financed and run by Central Government in the past. The Council estimates that a minimum of 1,000 new low-cost houses will be required by 1975 to alleviate the over-crowded conditions that already exist and to provide accommodations for those living in Naledi – a squatter settlement on the industrial sites. Other projects to be carried out are a minor expansion of the schools and the erection of a market stand near the rail station.

11.24 Industrial expansion has occurred at a fairly rapid pace. Initially 77 industrial sites ranging from one to four acres in size were provided. They have all been utilised and a new extension will be opened providing an additional 225 sites, ranging in size from ½ to 1 acre. It is estimated that at least 50 of these sites will be utilised by 1972 with the remaining sites developed by the end of the Plan period. The Government intends to create within this area an Industrial Estate for light industry and

small workshops. Commercial development of the Mall has been equally rapid. Approximately 40 percent of the Mall is developed; construction is taking place on 20 percent of the Mall; plans have been prepared for an additional 20 percent; the final 20 percent is either vacant or reserved for companies. By the end of 1970 a new cinema and several blocks of shops and offices will be opened. It is anticipated that commercial development of the Mall will be completed during the Plan period including landscaping. Construction of a hotel/casino complex near the golf course is expected to begin early 1971 to be opened in early 1972. Facilities attached to the complex will include conference facilities, an international—standard golf course, a marina on the dam to provide a variety of water sports and other sporting facilities such as tennis and squash courts, and small shops. Once completed this complex will provide the facilities to enable Botswana to host international conferences.

11.25 Central Government plans to expand and improve the Gaborone Secondary School, make additions to the out-patient clinics, tuberculosis ward and existing laboratory at the hospital. The Gaborone Airfield will be improved during 1970/72 so that it may accommodate short-haul jets. A five year project to expand electricity and water reticulation systems and sewerage system is also envisaged. (See projects ED19, MD01, PW12, PW02, PW02/4, PW20, and PW15).

(*c*) *Lobatse Town Council*:

11.26 With an estimated population of 9,000 in 1970, Lobatse is the third commercial centre in Botswana. It is projected that the population will expand at the rate of 5 percent per annum reaching 11,500 in 1975 and 14,500 in 1980. The Botswana Meat Commission abattoir and meat canning factory is located there, and also the maize mill which supplies the whole of Botswana.

11.27 Two major obstacles prevent the expansion of Lobatse; lack of available land, and lack of an adequate and assured supply of water. These obstacles are being studied and attempts made to overcome them. As with Gaborone, consideration will be given to revising the tax and rating structure to provide finance to service loans necessary for capital improvements and services required for the development of the township. The present township is surrounded by freehold farms and it has been necessary to purchase land for expansion. The Government is preparing peri-urban legislation to ensure an adequate supply of land is available in the future at non-speculative prices. It is estimated that the catchment area of the present dam will not be capable of meeting the anticipated demand after 1975 and there is no easily tapped alternative source. Plans are in progress to extend a pipeline from the Gaborone Dam to Lobatse to provide a secure supply of water. Government will take the necessary action to resolve the problem of Peleng Village. This is a village located within Lobatse Township, but is situated on State Land, and in recent years has expanded onto land owned by the Town Council. Since the village is located on land owned by two different bodies comprehensive planning is difficult. Steps are being taken to transfer this land to the Town Council so that the Council will be able to formulate development plans for this village.

11.28 Projects to expand and improve educational facilities and low-cost housing will be initiated during the Plan period. The Council will expand two of its schools and has received a grant and loan money to erect low cost housing (see project PW15).

11.29 Central Government during the Plan period will expand the secondary school in Lobatse to a two stream junior secondary school, and extend the water and electricity reticulation systems. (See projects ED17, MD04, PW20, WB05).

(*d*) *Central District*:

11.30 The Central District is the largest administrative district within Botswana. It covers an area of 55,730 square miles and contains a population estimated at 240,000 in 1970, with the Bamangwato tribe, the largest tribe in Botswana, residing in the district. Serowe is the administrative centre of the district and is the largest village in Botswana with an estimated population of 41,800 in 1970. Cattle ranching predominates in the western sector of the district and farming in the East. Average annual rain fall varies from 18 to 20 inches over most of the district falling off to 12 inches in the extreme eastern section. Mining developments and potential are extensive including copper at Matsitama, copper and nickel at Selebi-Pikwe, diamonds at Orapa, coal at Morupule, and soda-ash and salt at the Makarikari Sua Pan. (See Chapter 7).

11.31 Primary education commands the highest priority in the district over the Plan period. The goals that the Council has set for this period in the area of primary education are (1) an attainment of a student-teacher ratio of 40 to 1; (2) provide teachers with suitable accommodations; (3) upgrading standard I, II, III schools to standard IV schools and standard V and VI to standard VII schools where demand warrants; (4) provision of new schools and latrine and storeroom facilities where they are needed.

11.32 The provision of water for residents in the district is, after education, the most important function of the Council. In the past, Council has operated boreholes at cattle posts, lands and village

areas. In the future Council intends to concentrate its efforts in villages, while maintaining the present level of services in land areas. To facilitate this effort the Council will establish in each large village a Water Advisory Board (WAB), which will work in conjunction with the Village Development Committees, where possible, and advise the Council on the needs of the village with regard to water.

11.33 The extension and improvement of health services and tax offices and upgrading of district roads follow in the list of priorities. Council proposes to construct a number of health centres at designated "centre areas" throughout the district and station a full-time staff nurse/midwife at each centre. Council maintains revenue offices, approximately 8, in a number of villages; however, this is clearly an insufficient number in a district with over 100 villages of substantial size and where tax revenues amount to one-half of the toal Council revenue. Council proposes to construct a number of tax offices in places where tax collectors now cover. This construction will also alleviate the dangerous situation of collectors having no place to sleep or keep money. Maintenance of district roads, like tax offices, is not of the greatest priority to the Council; nevertheless Council will undertake to maintain roads which communities have cleared from main roads to their villages.

11.34 To attain the goals set out above, the Council plans to construct 86 classrooms and purchase the necessary furniture for these classrooms, erect 83 latrines and 80 storerooms and a number of teacher's quarters at a total cost of R106,800 in 1970. Educational expenditures in 1971 and 1972 are expected to be approximately R85,000 each year. Expenditures on the provision of water facilities are R9,900 for 1970 and this total is expected to increase in 1971 and 1972 as WAB's are established in the villages and submit their proposals to Council. The Council intends to establish two clinics – at Motshegaletau and Maunatlala in 1970 at a cost of over R18,000 and expenditure on this sector should be approximately R10,000 in 1971 and 1972. The Council intends to construct 25 tax collectors quarters throughout the district in 1970 at a total maximum cost of R50,000 (R200 per quarter). The Council also intends to complete construction of an abattoir in Serowe.

11.35 Total cost of development projects in 1970 is R154,000. These costs will be met from two sources (1) accumulated monetary reserves and (2) Central Government grants. The accumulated reserves of the Council total R280,000 and Central Government grants for the Central District in 1970 amount to R50,000. The Council expects to incur a deficit of approximately R50,000 on their recurrent budget in 1970 which will be met from their reserves.

11.36 Central Government plans a substantial number of development projects during the Plan period. In the large villages the main impetus is towards health facilities, secondary education, sewerage schemes, and water and electricity reticulation. In the rural areas a variety of agricultural schemes will be implemented along with expanded mineral exploration, improvement and extension of the main roads, wildlife conservation, (See Chobe and Ngamiland districts.), and provision for exploitation of water resources. In 1970, the plan is to sewer the hospital, Teacher Training Centre, and Police lines at Serowe and in 1971/72 Government buildings in Mahalapye and Baines Drift will be sewered. In 1971 Serowe will receive electricity. The maternity and paediatric wards at the Serowe Hospital will be expanded and a new outpatient clinic will be constructed. The construction of an operating theater and extension of other medical services at the Mahalapye Hospital are also provided for in the Plan period. The health centres at Pilikwe, Palapye and Rakops will be improved. A secondary school will be built at Mahalapye along Swaneng Hill lines. (See projects AD03, ED02, ED16, ED22, ED25, GS01, MD02, MD03, MD14, MD15, MD18, PW02/5, PW06, PW14).

(e) *Ghanzi District*:

11.37 The Ghanzi District encompasses an area of 43,430 square miles with a population estimated at over 19,000 in 1970. Approximately 6,000 Bushman nomads reside in the district. The administrative centre of the district is Ghanzi which has a population estimated at 1,050 in 1970. The Kalahari Desert covers the entire district. The terrain is flat and natural vegetation of the district consists of open veldt broken by stretches of savanna bush. Rainfall varies from 14 to 18 inches annually. Cattle ranching is by far the largest industry in Ghanzi and annually provides approximately 10% of the cattle exported. The cattle population was estimated at over 105,000 in 1968.

11.38 Improvement of educational facilities and provision of communal boreholes for the population are the two major concerns of the district. The Council intends to improve the quality of the existing schools through the provision of more classrooms, teacher's quarters and school equipment. The primary education curriculum at the European School in Ghanzi will attempt to provide more emphasis on agricultural education with the long-term aim of expanding this school to include secondary education, as staff and funds become available. There are some 15 public boreholes in the district maintained by Government. The Council intends to expand this number by five over the Plan period.

11.39 Another area of concern for the Council is land settlement. At present less than one-quarter of the total area of the district is being exploited, almost exclusively for cattle-ranching, and unless the area of exploited land is increased over the next several years the economy of the district and livelihood of most of its inhabitants will remain precarious. Three problems exist: (1) the difficulty and expense of finding underground water supplies; (2) the Bushman problem (see Project LG04); and (3) communal land use. The Council has established projects aimed at resolving these problems, but their limited financial resources make it imperative for Central Government to provide assistance.

11.40 The Council plans to construct classrooms, teachers' quarters, latrines, storerooms, and offices in 1970 at a total cost of estimated at R5,000. The expansion of communal boreholes will occur over the Plan period and the Council expects to spend approximately R5,000 in 1970. A deficit of R17,000 is expected on the ordinary budget with revenues amounting to only R34,000. This deficit will be met by a grant from Central Government.

11.41 The Government proposes to upgrade the Ghanzi-Kanye road during the Plan period. The improvement of this road will greatly increase the economic advantage of trucking cattle to the abattoir. In conjunction with this Government intends to establish a Quarantine Camp for cattle from the Ghanzi District in 1972. It is assumed that after the Ghanzi-Lobatse road is upgraded the trucking of cattle, rather than trekking, will become predominant. When this occurs there will be need to quarantine these cattle before they leave the district. Trekked cattle are quaranteened at Phudu-hudu. (See projects AH06 and PW22).

(f) Kgalagadi District:

11.42 The Kgalagadi District covers 40,330 square miles with an estimated population of 18,000 in 1970. Tshabong is the administrative centre which has an estimated population of 1,060 in 1970. The entire district is covered by the Kalahari Desert and experiences an annual rainfall of 8 to 14 inches. The terrain is in places undulating dune sparsely covered with a variety of grasses and thorn scrub. About 8,000 acres of land – the Molopo Freehold Farms – along the Molopo River are under cultivation. The remainder of the district is used for cattle, sheep, and goat ranching wherever water is available.

11.43 The Council considers the improvement of education and provision of water to the people in the district to be its main immediate objective; however they are unable to finance development projects without Central Government aid. Their reserves are about R2,000 and the Council expects to incur a deficit of almost R25,000 on its recurrent budget in 1970, with revenue amounting to only R39,700. This deficit will be met by a grant from Central Government which has also provided R10,000 for development projects.

11.44 Central Government plans to assist the Karakul sheep ranchers in the extreme southwestern portion of the District around Bokspits. A thriving Karakul sheep industry has been created on State Land; these people require and will be given security of tenure, through the granting of long-term leases. Government will also provide development finance during the Plan period to enable these ranchers to properly fence and water their farms. Concurrent with this will be the establishment of a Government Karakul Demonstration Ranch.

11.45 Improvements to Tshabong Hospital and the sewering of major Government buildings in Tshabong are planned. (See projects AP03, AP07, MD13, PW02/5.)

(g) Kgatleng District:

11.46 The Kgatleng District is located north and east of Gaborone. It covers an area of 2,960 square miles with a population estimated at over 38,000 in 1970. Mochudi is the administrative centre for the district with a population estimated at 21,200 in 1970. Apart from a small range of hills stretching from the Notwane River, southwest to the Kweneng district border, and isolated hills in the South, the district is mainly flat, consisting of savanna veldt. The average annual rainfall varies between 18 and 20 inches. The district is divided into areas of grazing mostly in the North, West and East with cultivated land in the South and Centre. There are 44 stores in the district employing 170 people. The Kgatleng Youth Development Association which includes a builders brigade, leather works, and printing press, is the largest single employer, with approximately 65 workers. Livestock ranching is the predominant industry. Of 1.6 million arable acres of land for cultivation only 166,000 are under cultivation.

11.47 Improvement of education and provision of water for people and cattle are the top priorities in the district. For education, the Council desires to attain student/teacher and student/classroom ratios of 40 to 1, and to improve the number and quality of teachers in the district. Because of the limited resources of the district, the top priority within education is the improvement of the quality of teachers. To attract a higher standard of teachers, the Council will construct adequate teacher's quarters throughout the district. The provision of water is divided in the plan between village water supplies and rural water supplies; rural water supplies receive the top priority. The Council believes that rural water supply is production

nted and an improvement of these supplies will lt in increased cattle and crop production. This vision of rural water will help people to increase r incomes. The construction of a series of small s appears to be the most feasible solution to this blem. The drilling, equipping of boreholes, air of existing boreholes and construction of rvoirs is the solution envisaged for village water olies.

.48 The Council is determined to improve th services in the district. A short-term solution, ated by the Council's limited financial resources, operate a mobile clinic in conjunction with the .M. Hospital in Mochudi; however for this ect to succeed the road network throughout the rict will have to be improved. Most of the road rovement will occur through self-help (Ipele-g) schemes.

.49 To attain the educational goals, mentioned ve, the Council plans to construct 37 teacher's rters, 16 classrooms, 90 latrines and purchase iture for 17 classrooms over the Plan period. eduled for 1970 are the construction of 12 her's quarters, 5 classrooms and latrines, and purchase of 8 sets of classroom furniture. The l estimated cost is R13,750. With regard to er provisions the Council plans to repair 15 holes in villages throughout the district in 1970 1971. The cost of this project in 1970 is R11,400 in 1971 R6,500. To help alleviate the water tage problem in Mochudi a reservoir-pipeline ect has been planned and costed at R11,400. nall agricultural dams for the rural area are ned throughout the district. The Government be responsible for this project. In 1970 the ncil will construct a market place in central chudi, to provide a central meeting place for the ers and sellers of food products and handicrafts n estimated cost of R500.

1.50 The Council had planned to incur a deficit R10,000 on their ordinary budget in 1970, but must now be met through an improvement in collection of local government tax, which the ncil has been lax in collecting in the past. To ourage greater effort in this field, Central vernment is withholding its grant for develop-nt projects until the Council has improved its tax lection performance.

1.51 Central Government projects include ex-nsion of Molefi Secondary School, sewering of ochudi, and improvement of the North-South d north of Pilane. It is planned to provide two rm IV facilities for Molefi Secondary School in e for the 1973 academic year. Sewering of the vernment camp in Mochudi is scheduled for 1971/72 and improvement of the North-South road in 1970. (See projects ED06, PW06, PW02/5).

(*h*) *Kweneng District*:

11.52 The Kweneng District is located northwest of Gaborone with the southeastern corner only three miles west of the capital. It covers an area of 13,650 square miles of tribal land and contains a population estimated at 87,200 in 1970. Molepolole is the administrative centre of the district and has a maximum de jure population estimated at 37,000 in 1970. Apart from a few isolated hills concentrated in the southeast portion, the district is mainly flat, and the annual rainfall varies from 14 to 20 inches. There is no industry in the district, and paid employment is confined to Government service, mine labour, or work in stores and on the land. The district is almost entirely agricultural, with cultivated land areas concentrated in the heavily populated and generally arable eastern region. A total of 134,000 acres is cultivable in Kweneng, but it is estimated that only one-quarter of the cleared land was under cultivation in 1969.

11.53 The Council has prepared a plan covering 1969 and 1970 in detail and 1971 generally. Education and provision of water are the top priorities for 1969 and 1970. If the goals for these years are attained, emphasis in 1971 and 1972 will centre on health, communications and administrative facilities.

11.54 To implement their strategy for development the Council propose improved educational facilities at three schools in 1969. At Lephepe School the hazardous walls were removed and classrooms rebuilt and new ones added. Mahetlwe School which opened in 1969, was completed by providing roofs and furnishings for the classrooms. At Mankgodi the construction of three classrooms was begun late in 1969 and will be completed in early 1970. To improve the water facilities at several villages, the Council proposed eight projects spread over 1969 and 1970. These include the drilling and/or equipping of six boreholes, the construction of a pipeline from a borehole to Mogoditshane and reservoir at Khudumelapye. Work has barely begun on these water projects and it is expected that these projects will extend into 1971. The total cost of improving water provisions in the district is estimated at R17,300.

11.55 The Council anticipates revenues of R182,000 and this will leave them with a deficit of R27,000 on their recurrent budget. The Council will meet this deficit from their accumulated monetary reserves and will receive a grant from Central Government to cover their proposed development projects.

11.56 Central Government envisages only three projects for the Kweneng District during the Plan

iod: expansion of Kgari Sechele Secondary
ool, upgrading of the Molepolole-Gaborone
d, and the sewering of Molepolole Government
mp. The Kgari Sechele School presently has
ee forms; it is expected to expand to a Form V
ool during the Plan period, which will save
dents from the necessity of travelling for example,
Swaneng or Gaborone to complete their second-
education. The Molepolole-Gaborone road
provement project will cover two years beginning
971. (See projects ED05, PW07 and PW02/05).

Ngamiland and Chobe Districts:

1.57 The Ngamiland and Chobe Districts
CD) are administered jointly by the North West
trict Council. The NCD comprises an area of
570 square miles. The population is estimated
1,000 in 1970. The administrative centre for the
districts is located at Maun and its population
stimated at just under 15,000 in 1970. The
ricts are characterised by a wide range of geo-
phy and vegetation. The most salient feature is
Okavango delta which drains into it. The delta
vast water reservoir supplying most of the water
ds for the area. Much of the immediate area
rounding the delta is seasonally inudated.
ound the delta there is a wide belt of dry forest
dually turning to Kalahari bushveld in the
th and West. The average annual rainfall is
ween 18 and 26 inches.

1.58 The NCD with its rich supply of water and
ie provide economic opportunities for the resi-
ts of the districts unrivaled elsewhere in
swana. The concentration of game are of such
gnitude and variety unequalled elsewhere in
ica. The abundance of game in these districts
vide a valuable source of food for the population
well as providing skins for the manufacture of
hing, blankets, riems and curios for the tourist.
eral photographic and hunting safari companies
e established in the NCD. Two game parks –
remi Wildlife Reserve and Chobe National
k have been created and a bird santuary will
stablished in the Okavango Swamps. Expansion
tourism will greatly aid these districts econo-
ally. (See Chapter VI). The fishing industry
has a good potential in the Ngamiland District.

1.59 Education receives the top priority of the
th West District Council for the Plan period.
the intention of the Council, in addition to the
ansion of educational facilities, and improving
ting schools, to improve the quality of teachers
achieve a teacher/student ratio of 1 to 45.
ter development effort will concentrate on
easing water supplies in the eastern sector of
NCD which has limited or no access to the major
Okavango surface supplies, with emphasis on providing adequate water to population centres. The Council will construct a number of clinics throughout the districts during the Plan period. All of the clinics scheduled to be built will improve the facilities in villages which are now visited by dispensers. To improve communications the Council plans to construct a number of bridges – at Samedupi and near Seronga on the Maun/Seronga road – to ensure year-round road access throughout the Ngamiland District. With the aid of Central Government and if funds permit, the Council will establish a ferry at Shakawe/Mohembo to provide access to the north western portion of Ngamiland District.

11.60 To attain the education goals set out above, the Council plans in 1970 the construction of 14 classrooms, 40 teacher's quarters, 40 latrines, 6 storerooms and 4 offices at a total approximate cost of R35,000, with such expenditures decreasing to R10,900 and R10,000 in 1971 and 1972 respectively. The Council has also allocated R10,000 to begin a Youth Training Programme. This programme will attempt to deal with the problem of primary school leavers on a realistic scale. During 1969, 321 students completed primary school but only 48 continued on to secondary school in 1970. As presently conceived the programme will consist of three elements – an agricultural, building and handicrafts programme. To improve water and health facilities the Council will build a staff quarter and 2 clinics, provide Pandamatenga with a borehole and Gomare with a water reticulation system. Two brigades – at Samedupi and Seronga – and a ferry will be established in 1970. These projects will cost over R14,000.

11.61 The North West District Council is the only Council that expects to attain a surplus on their recurrent budget. To finance development projects the Council will use their accumulated monetary reserves amounting to approximately R100,000. R25,000 of these reserves was incorrectly paid to Council by Government for hunting fees; consequently, Council is required to spend a like amount on Tourist Development over the next three years.

11.62 Central Government plans a substantial number of projects for the Ngamiland and Chobe Districts during the Plan period. A Pilot Settlement Irrigation Scheme will be established on the Chobe River near Kasane. This scheme will assess the potential for irrigation in Botswana studying in particular the human and practical problems facing farmers under the strict regime and discipline essential to successful irrigation farming. The Maun Hospital and Kasane Health Centre will be

expanded and services improved. Kasane and Maun airfields will be upgraded in 1970 and 1972 to meet the increased number of tourists coming into the districts. Studies will be continued to determine the feasibility and methods of utilising productively water from the Okavango River. Improvements will be made to the national parks and game reserve areas located in Ngamiland and Chobe District. (See projects AD11, MD07, 08, PW11, WB21).

(*j*) *Ngwaketse District*:

11.63 The Ngwaketse District covers an area of 10,540 square miles, The population is estimated at 85,000 for 1970. Kanye is the administrative centre of the district and has a population estimated in 1970 of just over 40,900. After Serowe, Kanye is the largest village in Botswana. The Ngwaketse District has some of the best farming areas of Botswana in the south-eastern portion of the district.

11.64 Primary education is the top priority of the Council. There are 33 primary schools in the district which employ 200 teachers and staff; however, only 42 per cent of the school-age children in the district attend registered schools and 20 per cent of the teachers are unqualified. The Council plans to increase the percentage of students attending registered schools substantially over the Plan period. They will also attempt to attract more qualified teachers through an improvement in living accommodations for teachers.

11.65 The Council is concerned about the existing water supplies in the district. Many villages do not have adequate and healthy water supplies because of a lack of boreholes and poor maintenance of existing ones. The Council, though the organization of a Mobile Water Syndicate Team, will tackle this problem. The Council is also concerned about the level of health services throughout the district. Dispensaries have been established in several villages and the Council plans to provide nurses for these dispensaries during the Plan period. The Council established a road improvement programme in 1969 and will continue this during the Plan period. If finances permit, the Council intends to provide assistance to several community organizations, the Kanye Handicrafts School and Youth Training Centre.

11.66 In advancing towards the goals established above, in 1970 the Council will construct 8 classrooms, 4 teacher's quarters, 14 latrines, 3 storerooms, purchase furniture, and improve water supplies to existing schools. The total cost of these projects is R15,040. The Council will also construct offices at Samare and Mabutsane, a store, continue their programme of road improvement, and provide some assistance to the organizations mentioned above. These projects will cost approximately R3,000.

11.67 The Council will incur a deficit of approximately R29,000 on their recurrent budget in 1970 with revenues totalling R165,000. This deficit will be met from the accumulated monetary reserves of the Council. The Council will also use part of these reserves in addition to a grant from Central Government to meet the expenditures on development projects.

11.68 Central Government plans several development projects during the Plan period for the Ngwaketse District Kanye is scheduled to receive electricity reticulation in 1972 and the Government camp will be sewered in 1971/72. The Kanye-Lobatse and Kanye-Ghanzi roads are scheduled to be upgraded. Seepapitso Secondary School will be expanded in 1970 and 1973. (See projects PW14. 02/5, 06, 22 ED07).

(*k*) *North East District*:

11.69 The North East District covers 2,030 square miles with a population estimated at 28,500 in 1970. The administrative centre of the district is Francistown. The district is flat between the Vukwe hills in the North, Shashe river in the West and Vukwe river in the East. The remainder of the district is undulating with numerous hills. The entire district is covered by mopane veld with small scattered patches of mogonono veld north of Bosoli. The average annual rainfall is 16-20 inches. The major industry is cattle ranching with some subsistance farming throughout the district.

11.70 Large tracts of land are divided into freehold farms owned by private individuals, the remainder is state land largely occupied on traditional tribal basis and has recently been acquired from the Tati Company. The Tati Company's control of land in the district in the past obstructed development of the district. It is now possible to formulate and implement a comprehensive land use plan involving the planned and supervised resettlement of areas not already fully occupied. An Administrator has been assigned to this project to gather the information and data on which any resettlement schemes must be based.

11.71 Exploration in the district has resulted in the discovery of substantial mineral deposits. Exploitation of these resources should begin before the end of the Plan period. This development will provide employment and contribute to raising the standard of living in the district. Such development would also increase Council revenue and permit further improvement of services.

11.72 The Council expects to receive in 1970 R65,000 in revenue leaving a deficit of R23,000 on

the recurrent budget. This will be met by a grant from Central Government, and the Council will be provided with a grant for development projects. Due to the absence of a revised development plan, implementation of projects will be negligible during 1970; however once a comprehensive plan is completed for the district, developments will be substantial in the remaining years of the Plan period.

(l) South East District:

11.73 The South East District is the smallest administrative district within Botswana. It covers an area of 700 square miles and contains a population estimated at approximately 29,000 in 1970. The South East District also includes the Gaborone and Lobatse freehold farming blocks. Ramotswa, population estimated at 11,900 in 1970, is the administrative capital. There is no industry of any kind in the district, and the land is used for farming and the grazing of livestock. There is some cattle ranching on the privately owned farms and most people in the reserves carry on subsistence farming. Gaborone, the capital of Botswana, and Lobatse are situated within the district, although not part of it, and many people from the district have secured employment in these towns. The southern portion of the district is hilly, but the majority of the land is flat and experiences an annual rainfall of between 20 and 22 inches.

11.74 Due to the shortage of land the potential for expanding ranching is very limited. Hence there is an increasing need for the young men and women to seek their livelihood in employment outside the district, and in particular in Lobatse and Gaborone. The Council considers it essential that investment in human resources be their top priority, so that inhabitants of the district can earn a living by marketing their skills elsewhere in the country and provide a favourable environment – through skilled manpower – to encourage industry to locate within the district. The second area of concern is to provide the villagers in the district with an adequate and healthy supply of water.

11.75 Educational projects to be undertaken in 1970 are the construction of several teacher's quarters at Tlokweng, Ramotswa, Ootse and Mogobane. Other educational projects for 1970 include extension of Ootse School and Content Farm. Ootse School was upgraded to a standard VII school and additional classrooms, latrines and storerooms must be built to meet the increase in enrolment. At Content Farm it is proposed to construct 4 classrooms, 6 latrines, 4 teacher's quarters, head-teacher's office and storeroom at a cost of R9,500. Additional educational projects to be undertaken during the Plan period are a new school at Ramotswa and extension of Mogobane School. The Council will implement two water schemes during 1970 at a cost of R1,400; the drilling and equipping of a borehole at Ramotswa Station and the purchase of covers for two reservoirs at Ramotswa.

11.76 The Council expects to incur a deficit of R26,000 on their recurrent budget, which will be met by a grant from Central Government. Revenue is expected to reach R61,000. Their development projects will be financed from (1) accumulated monetary reserves and (2) an additional grant from Central Government.

11.77 Projects to be carried out by Central Government during the Plan period include the expansion of Moeding College at Ootse and St. Joseph's College at Khale. Gaborone-Lobatse road will be upgraded to bitumen standard over four years beginning in 1970. (See projects ED03, ED04, PW01).

Table 11.1

Development Expenditures of District and Town Councils for 1970

COUNCIL	Education	Water Resources	Health Services	Local Industry & Commerce	Housing (includes sewerage extension)	General Development	Total Development Expenditures
Central	106,800	9,900	18,230	7,300	–	11,770	154,000
Ghanzi	5,000	5,000	–	–	–	–	10,000
Kgalagadi	5,000	5,000	–	–	–	–	10,000
Kgatleng	13,750	22,800	–	500	–	–	37,050
Kweneng	–	6,000	–	–	–	3,075	9,075
Ngwaketse	15,040	–	–	–	–	3,050	18,090
North East	–	–	–	–	–	10,000	10,000
North West	44,250	4,000	1,150	–	–	9,300	58,700
South East	10,990	1,400	–	–	–	–	12,390
Sub-Total Districts	200,830	54,100	19,380	7,800	–	37,195	319,305
Francistown*	–	–	–	–	150,000	–	150,000
Gaborone	17,500	–	–	20,000	250,000	4,000	291,500
Lobatse	5,900	–	–	–	100,800	3,000	109,700
Sub-Total Townships	23,400	–	–	20,000	500,800	7,000	551,200
Total Local Councils	224,230	54,100	19,380	27,800	500,800	44,195	870,505

Table 11.2

Income of District and Town Councils for 1970

COUNCIL	Rates and Local Government Tax	School Fees	Other Income and fees	Total Income
Central	330,000	210,275	116,725	657,000
Ghanzi	20,200	6,980	7,080	34,260
Kgalagadi	19,000	13,250	7,470	39,720
Kgatleng	60,000	42,615	16,385	119,000
Kweneng	90,000	55,300	27,900	173,200
Ngwaketse	96,000	45,400	23,600	165,000
North East	25,750	34,600	5,090	65,440
North West	84,000	29,060	74,600	187,660
South East	31,000	19,085	10,715	60,800
Sub-Total Districts	755,950	456,565	289,565	1,502,080
Francistown	111,300	18,450	21,200	150,950
Gaborone	145,000	14,400	96,758	256,158
Lobatse	80,000	12,300	42,295	134,595
Sub-Total Townships	336,300	45,150	160,253	541,703
Total Local Councils	1,092,250	501,715	449,818	2,043,783

Table 11.3

Recurrent Expenditures of District and Town Councils for 1970

NCIL	Finance & General Purpose	EDUCATION			Development & Health & Works & Housing	Total Expenditure
		Teachers' Salaries & Provident Fund	Other Educational Expenses	Total for Education		
al	85,621	483,650	72,333	555,983	78,396	720,000
i	15,008	29,925	6,330	36,255	–	51,263
gadi	15,417	42,585	4,535	47,120	405	62,942
eng	24,294	75,600	19,006	94,606	9,176	128,076
eng	36,221	121,800	27,769	149,569	24,133	209,923
ketse	42,346	117,042	18,497	135,539	16,415	194,300
East	10,210	68,250	7,415	75,665	2,656	88,531
West	49,790	69,835	31,954	101,789	23,381	174,960
East	12,616	56,484	10,400	66,884	7,000	86,500
OTAL RICTS	291,523	1,065,171	198,239	1,263,410	161,562	1,716,495
stown	44,500	58,700	13,000	71,700	10,700	126,900
one	131,524	37,800	13,401	51,201	68,030	250,755
sc	29,858	61,804	27,988	89,792	30,335	149,985
OTAL NSHIPS	205,882	158,304	54,389	212,693	109,065	527,640
AL COUNCILS	497,405	1,223,475	252,628	1,476,103	270,627	2,244,135

Chapter XII – Finance for Development

Financial Policy

12.1 For the past fifteen years Botswana has been receiving an annual grant-in-aid to balance its ordinary recurrent budget. In 1969/70 the grant-in-aid totalled R6.1m. In addition the country received development grants from the U.K. amounting to some R3 m. Revenues raised have been sufficient to meet less than half the annual recurrent expenditures.

12.2 In 1966 Botswana was in the position of having achieved political independence while having little prospect of attaining economic independence for some years to come. Even with the most austere taxation the recurrent budget could only be balanced by a major retrenchment of services and by bringing all development to a halt.

12.3 The Government was thus faced with two alternatives; either to seek from donor countries budgetary aid not only to enable existing services to be maintained, but also to meet the recurrent costs generated by the implementation of development projects, or to reconcile itself to the prospect of prolonged stagnation at subsistence level. An analysis of the prospects for development indicates that Botswana has the potential to achieve budgetary self-sufficiency under conditions of growth very soon provided that the funds required for mining development are forthcoming.

12.4 A development plan, if it is to be practicable, must be formulated within the limits of available resources, human, physical and financial. Since Botswana is almost entirely dependent on donor countries for finance for the Plan, the size of the development programme proposed cannot be determined simply by consideration of the availability of finance. The reason for this is obvious. Until now most outside financial assistance has come from the United Kingdom; it is now anticipated that many other countries and the World Bank will contribute funds, but at the present juncture the extent of this assistance is not known. It is indeed hoped that the presentation of a carefully prepared development plan will encourage aid agencies to provide finance for it.

12.5 In addition to the loans which may be obtained from aid agencies, the Botswana Government will seek funds through issuing bonds on the private capital market in Southern Africa and possibly later in Europe. R3 million has already been raised this year; R1 million was in the form of Five Year Bonds bearing interest at 5½% p.a., R2 million was obtained from an issue of Registered Bonds 1988/97 bearing interest at 7½% p.a. It is intended to raise similar amounts in future years.

12.6 The scope of the present Plan has been guided by the range of development projects capable of being implemented within the next five years. The choice of projects to be included has been governed by the policies and priorities set out in Chapter II. The size of the development programme has been defined by consideration of the available trained manpower and the physical capacity of the economy to undertake immediate development.

12.7 Since the immediate objective is budgetary self-sufficiency, emphasis has been given to infrastructural development which will enable productive investment to take place. In the preparation of estimates of expenditure the greatest austerity has been observed and nothing inessential for the implementation of the development programme has been included.

Mobilisation of Local Savings

12.8 There is considerable scope for raising development finance within Botswana by the mobilisation of local savings. At present savings in Botswana are either deposited with the Post Office Savings Bank or with the commercial banks. Recently a number of Thrift and Loan Societies have been started and these will be fostered by the Department of Co-operative Development. However, the Thrift and Loan Societies commonly deposit their surpluses with the commercial banks. The commercial banks keep their surpluses in South Africa. Botswana is, therefore, in this respect a creditor nation, a role she can ill afford to play at this juncture in her development.

12.9 The situation is well illustrated by the most recent banking statistics available which described the position as at 31st March 1970. At that date R20,136,000 was deposited with the commercial banks; advances outstanding to residents, organisations and institutions in Botswana totalled R10,137,000. Apart from the funds held as notes and coins, it would appear that the remainder, amounting to approximately 50% of deposits was held outside Botswana. At the same time the country is in urgent need of finance for telecommunications, power, water supplies and housing, all of which are sound loan-worthy projects. The commercial banks have recognised the need to rectify this situation very recently when they contributed generously to the Government Bond Issue. More credit on easier terms also needs to be made available to commerce and industry to stimulate the private sector.

12.10 In addition to the above, many of the wealthier residents hold investments in South Africa in building societies, Government stock and

in company shares. It is evident that considerable savings are being generated within Botswana and these must be used to develop this country, not other countries.

12.11 There is a need for an institution through which local savings may be invested in mortgage finance. Active consideration is now being given to the formation of a local building society. It is hoped to obtain assistance for this endeavour from an established building society abroad. Consideration will also be given to deploying for national development such other funds (e.g. pension and provident funds, etc.) as are controlled by the Botswana Government, to the extent consistent with sound financial management.

Recurrent Expenditure

12.12 Table 12–3 sets out projections of recurrent expenditure to maintain and improve existing services, and Table 12–4 gives the anticipated recurrent expenditure arising from development, excluding public debt. The ordinary recurrent expenditure will rise by about 13.5% per annum during the Plan period. This very high figure is justified by the need to raise the basic technical and administrative capacity of Government to a level where it can handle effectively the greatly increased development programme. The actual increase permitted will be decided year by year in the context of the progress made in establishing the new mines, and revised estimates of domestic revenue.

12.13 The increase in staff envisaged will only be achieved if the proposed crash programme of in-service and vocational training is implemented, and if overseas recruitment of technical and professional personnel is successful. In the short term it is likely that considerable use must be made of consultants. The single major bottleneck to the implementation of this Plan is likely to be scarcity of skilled manpower at all levels, but particularly at junior levels. For this reason, the Government has engaged a manpower expert to review in detail the public sector manpower requirements for the period 1970/75. His report will be available by August 1970.

12.14 It will be noted that a very large increase in recurrent expenditure is envisaged in the field of education. This is consequent upon the rapid expansion of secondary education; it is essential for this to be met if the country's long term manpower problems are to be solved. The other ministries showing substantial increases are Agriculture, and Works and Communications, both of which play a central role in the development programme.

12.15 An important economy may be achieved by the reorganisation of the mechanical workshops and the establishment of a vehicle pool. A high proportion of the present vehicle fleet is out of service at any one time; improvements here could result in a substantial saving in the annual expenditure on transport. The introduction of home ownership incentives should also result in a steady reduction in the cost of housing the civil service by mobilising individual savings.

12.16 The increase in recurrent expenditure generated by the capital investment programme amounts to little more than 7½% of the expenditure on the development budget, allowing for a one year time lag. Most of the loans are likely to be on soft terms and do not create a serious public debt burden. In 1970 public debt repayments will amount to approximately 10% of domestic revenue, falling to under 6% in 1974/75.

Projections of Domestic Revenue

12.17 An important feature of Botswana's system of public finance derives from its membership of the Southern African Customs Union and the Rand Currency Area, together with South Africa, South West Africa, Lesotho and Swaziland. The Government has, as a result, no control over customs and excise duty rates which are commonly the major source of government revenue in developing countries and powerful instruments of financial policy. Membership of the Rand Currency Area means no income accrues to the country from the investment of currency reserves and no direct investment attributable to the fiduciary element in the currency.

12.18 Under the terms of the 1969 Customs Union Agreement Botswana receives in revenue about 20% of the total value of all imports from whatever source (c.i.f. Botswana's border) in respect of customs, excise and sales duties. In this way revenue is tied to the level of imports and reflects the general level of economic activity in Botswana far more closely than did the fixed percentage formula employed in the 1910 Agreement. Projection of revenue from this source is thus based on projections of imports; it can be seen from Table 12–5 that this revenue will be very significant, constituting 66% of total domestic revenue in 1973/74 and 60% at the end of the Plan period. This very rapid rise is explained by the high level of imports associated with mining development.

12.19 The 1969 Customs Union Agreement provides for payments of revenue in any one year to be based on import figures relating to two years previous to that year. This lag is explained by the delay in finalising import figures. However, in each year an adjustment is made in respect of the difference between the actual revenue paid two years

previously and revenue which should have been paid had current import figures been available. In this way any fluctuations in imports which arise will be reflected in a magnified form in the annual revenue payments. For this reason it is proposed to establish in 1972/73 a customs, excise and sales duty Revenue Equalisation Fund to cover the drop in revenue anticipated two years after the major Shashe Complex investment has been completed. The establishment of a new mine in the Tati during 1973/75 would, however, ensure that revenue is maintained.

12.20 During the Plan period it is projected that tax and royalties from mining will rise steadily from nil to over R3.5 million in 1974/75. Thereafter mining revenue will continue to rise to an estimated R8–10 million in 1980. It is anticipated that revenues from other sources will be buoyant, benefiting from the secondary activities generated by the mining development. Detailed projections are given in Table 12–5.

12.21 It is apparent from Table 12–5 that Botswana should achieve self-sufficiency in respect of recurrent budgetary expenditures by 1972/73. This target will only be achieved, however, if anticipated mining developments actually take place according to the phasing envisaged in Chapter VII. This Plan estimates that domestic revenue will reach R33.4 million in 1974/75 with a resultant surplus of R7.8 million on current account part of which will be available for capital development.

12.22 It is recognised that Botswana cannot expect other countries to make any financial sacrifice for her unless she herself contributes the most possible towards development. The Government proposes to review the present tax structure. Fiscal policy, however, must never be considered simply from the point of view of raising revenue for the Exchequer. This is particularly true in the case of Botswana which has almost no possibility of using monetary controls to guide economic development. Fiscal policy must therefore be used consciously as a weapon of Government policy to stimulate and direct the economy. Fiscal incentives are a relative matter and Botswana's "open" economy is greatly affected by the rates of taxation pertaining in the Republic of South Africa. Botswana must compete with South Africa for private investment essential for her development and she simply cannot afford to ignore the disincentives that would result from an unfavourable differential in the rates of taxation. The Government considers that a number of changes are desirable to increase incentives for new investment without decreasing overall revenue.

Finance from External Sources

12.23 Table 12–2 sets out the estimated revenue from external sources at present in sight. It will be noted that the U.K. Government has already agreed to provide grants-in-aid of the Recurrent Budget up to a maximum of R4,285,000 for 1970/71 and a similar figure for 1971/72. Thereafter the need for grant-in-aid is anticipated to end.

12.24 It is intended to seek International Development Association credits in respect of the Lobatse-Gaborone Road project, the Livestock Development project and the Lobatse Water Supply project. It is hoped that the Swedish International Development Agency will also participate in the financing of these projects. The World Bank will provide the main finance for the Shashe Complex project in conjunction with the Canadian International Development Agency, U.S.A.I.D. and the Danish Government. U.S.A.I.D. have indicated interest in several projects, the most important being the Nata-Kazungula Road. The U.K. Government has offered some R7.6 million for the 1970/73 period in the form of an interest free loan. The latter is made available to finance a wide variety of projects, many small, which enables the development effort to proceed on a broad front. The British aid is invaluable in this respect, since it provides the Botswana Government with the necessary resources to achieve co-ordinated development.

National Development Bank

12.25 Reference has already been made at several points in this Plan to the role of the National Development Bank in promoting agricultural, commercial and industrial activities by offering special credit facilities. The British Economic Survey Mission (1965) observed that "the activities of the commercial banks are regulated in general terms by the financial and credit policies adopted by the Government of the Republic of South Africa. At present the credit situation is so tight that it is difficult if not impossible to secure credit through the banking system for projects in Bechuanaland". This situation continues to exist, and it is therefore vital for Botswana to have an effective national financial institution through which Government may encourage and attract investment and guide development.

12.26 Government is aware that the National Development Bank is at present limited by its small staff which prevents it from taking the initiative on projects and providing entreprenurial skills where necessary. To meet this need a Botswana Development Corporation has been established, as indicated in Chapter VI. Nevertheless, it is clear that there is

a continuing and increasing need for an institution such as the National Development Bank with additional staff and additional capital.

12.27 The Government considers that the following points must govern lending by the N.D.B.:

(a) the Bank must adopt a policy which reflects the policies and development priorities of Government;

(b) the scope of the Bank must embrace loans to agriculture, trade, industry and housing;

(c) emphasis should be placed on loans to small farmers and on the acceptance of unorthodox security, such as character loans;

(d) the Bank, together with the B.D.C., should be regarded by Government as the central agencies for the issue of credit, and as far as possible all Government credit should be channelled through these institutions;

(e) loans should, as far as possible, be issued in kind and not in cash. The Bank should pay for goods or services supplied to borrowers, who should handle as little cash as possible;

(f) one of the best and cheapest methods for the Bank to issue a large number of small loans is through the medium of properly organised and controlled co-operative societies; Co-operative credit should therefore be encouraged.

Capital Expenditure

12.28 Projections of capital expenditure by department are set out in Table 12–1. The individual projects are described in Part II of the Plan, where the expenditure is given project by project for each year. Some of the projects have already been started, and the expenditure projected will permit their completion. The allocation of funds is discussed in Chapter II.

12.29 It is envisaged that only 75% of the capital expenditure projected by project (excluding the Shashe Complex) will in fact be achieved in any single year; the balance will be carried forward in each year to the following year. A sum of R18 million remains unallocated in respect of the period 1972/75. The detailed projects in respect of these funds has not yet been prepared; the allocation of the funds will be decided in light of the progress made in the implementation of the first two years of the Plan.

Financial Summary

12.30 Table 12–6 summarises the financial projections. The overall shortfall amounts to just over R1 million in 1970/71 rising to R8.56 million in 1972/73 and falling to R5 million in the final year of the Plan. No provision has been made in these projections for building up contingency reserve funds in a Revenue Equalisation Fund as described above. If this factor is taken into consideration approximately R40 million remains to be raised if the Plan targets are to be fulfilled. Some R10–15 million may be raised in the form of long-term Government Bonds. The remainder must be sought from the various aid agencies.

Table 12–1 Summary of Capital Expenditure by Departments
(R'000)

	1970/71	1971/72	1972/73	1973/74	1974/75
Agriculture Department	564	910	862	1,200	871
Community Development	126	56	44	30	20
Co-operative Division	163	–	–	–	
Development Planning	74	62	13	–	
Education Department	1,458	1,532	1,002	451	221
Department of Wildlife & National Parks	64	38	22	7	6
Government Printer	6	–	–	–	
Geological Survey	176	145	11	32	28
Home Affairs	79	85	116	98	115
Shashe Complex	1,940	8,350	15,000	10,250	
Interdepartmental Projects	784	334	205		
Information and Broadcasting	–	185	56	–	
Local Government and Lands	175	97	11	17	6
Medical Services	350	428	274	218	169
National Development Bank	275	375	225	230	250
Police Department	148	110	82	19	9
Posts and Telegraphs	74	652	68	115	189
Public Works	4,700	6,703	5,061	2,504	3,398
Surveys and Lands	275	224	224	154	154
Veterinary Department	229	303	229	223	148
Water Branch	1,067	1,692	882	628	545
Weights and Measures	20	–	–	–	
TOTAL	12,747	22,287	24,387	16,176	6,129
Unallocated Expenditure			3,500	7,000	7,500
TOTAL	12,747	22,287	27,887	23,176	13,629
TOTAL Target Expenditure*	10,045	20,829	27,785	23,143	13,111

**Note*: Excluding the Shashe Complex project, expenditure is assumed to be only 75% achieved in each year with the balance carried forward.

Table 12–2 Estimated Revenue from External Sources in Sight (R'000)

Source	Use	1970/71	1971/72	1972/73	1973/74	1974/7
	RECURRENT BUDGET					
U.K. Grant-in-Aid		4,285	2,768	–	–	–
	DEVELOPMENT BUDGET					
U.K. Government	Various	2,771	2,425	2,428	–	–
Oxford Committee of Relief	Demonstration Ranches	10	–	–	–	–
	Mobile Animal Husbandry Team	29	13	–	–	–
	Small Dam Construction	29	–	–	–	–
	Development of Fisheries in Southern Botswana	7	–	–	–	–
	Accruals on Completed Projects	6	–	–	–	–
U.K. Freedom from Hunger Campaign	Grain Storage	33	–	–	–	–
	Accruals on Completed Projects	1	–	–	–	–
Danish Government	Artificial Insemination Scheme	124	105	–	–	–
	Development of Water Resources	41	30	3	–	–
	Home Economics Lobatse T.T.C.	37	–	–	–	–
Netherlands Government	Moeding College	88	–	–	–	–
S.I.D.A.	Co-operative Development Centre	163	–	–	–	–
	Development of Water Resources	140	101	10	–	–
	Vocational Training Centre	89	227	4	–	–
IBRD and IDA	Gaborone and Lobatse Water Supplies	300	1,488	–	–	–
	Shashe Complex	1,940	8,350	15,000	10,250	–
	Gaborone/Lobatse Road	100	1,000	500	500	500
African Wildlife Leadership Foundation	Wildlife Conservation Education	15	–	–	–	–
ODM Research Grants	Entomological Research	13	–	–	–	–
	Quelea Control	13	10	–	–	–
UNICEF	Primary School Improvement	51	–	–	–	–
Anglo American	Lobatse Secondary School	63	37	–	–	–
World Meteorological Organisation	Meteorological Equipment	28	–	–	–	–
TOTAL		6,091	14,286	17,945	10,750	500
GRAND TOTAL		10,375	16,554	17,945	10,750	500

Table 12–3 Recurrent Expenditure to Maintain and Improve Existing Services (R'000)

	1970/71	1971/72	1972/73	1973/74	1974/75
National Assembly	60	61	62	64	65
House of Chiefs	13	13	14	14	14
State President	33	38	44	50	58
Office of President	134	137	139	142	145
Central Establishments	159	167	175	184	193
Embassies	222	229	236	243	250
Police	1,083	1,148	1,217	1,290	1,367
Broadcasting	60	64	67	71	76
Information Services	74	76	79	81	83
Ministry of Finance	259	272	286	300	315
Accountant General	700	770	847	932	1,025
Collector of Income Tax	61	64	67	71	74
Central Stores	100	115	132	152	175
Ministry of Health, Labour and Home Affairs	67	69	71	73	75
Immigration	83	88	93	99	105
Medical	1,053	1,200	1,368	1,505	1,656
Prisons	191	210	231	254	280
Labour	25	30	35	39	43
National Library Service	42	50	60	73	87
Ministry of Agriculture	28	31	32	33	34
Division of Common Services	45	46	51	57	58
Division of Planning & Statistics	31	34	37	39	41
Tsetse Fly Control	153	157	161	165	169
Department of Animal Health	914	960	1,009	1,060	1,113
Division of Land Utilisation	193	198	203	213	224
Division of Animal Production	127	133	140	143	147
Division of Agricultural Research	156	164	168	173	190
Division of Agricultural Extension	428	450	473	498	543
Co-operatives – Development Centre	29	30	31	33	36
Co-operatives – General Division	22	23	23	26	29
Botswana Agricultural College	117	120	123	130	136
Ministry of Education	22	23	24	25	26
Education	1,059	1,186	1,328	1,461	1,607
Vocational Training	140	147	154	162	170
Ministry of Commerce, Industry & Water Affairs	43	44	45	46	47
Dept. of Wildlife & National Parks	119	136	153	170	190
Government Printer	143	154	167	180	195
Geological Surveys & Mines Dept.	432	475	523	575	632
Water Branch	395	434	478	526	578
Weights & Measures Division	9	9	10	10	10
Ministry of Local Government & Lands	580	603	627	652	679
Community Development	161	169	178	186	196
District Administration	194	200	206	212	218
Local Government Audit	27	29	31	34	37
Surveys and Lands	172	178	186	193	201
Ministry of Works & Communications	43	45	47	49	51
Dept. of Posts & Telecommunications	703	787	882	987	1,106
Building Branch	799	879	967	1,063	1,170
Mechanical & Electrical Engineering Branch	273	287	301	316	332
Roads Branch	779	879	967	1,063	1,170
Civil Aviation	89	92	94	97	100
Meteorological Branch	17	18	19	20	21

Table 12–3 (contd.)

	1970/71	1971/72	1972/73	1973/74	1974/75
Ministry of Finance and Development Planning	59	62	65	68	72
Central Statistics Office	33	35	36	38	40
Shashe Project Co-ordination Team	14	14	15	15	16
Administration of Justice	67	70	74	78	81
Attorney General (General Division)	68	73	79	86	93
Prosecution Division	15	16	16	17	18
Lands Division	20	24	29	35	41
Auditor General	49	52	55	58	61
Public Service Commission Office	53	64	76	92	110
Public Debt	1,073	1,410	1,562	1,639	1,879
Pensions Gratuities & Compensation	588	635	685	740	798
Salaries & Allowance – Specified Offices	36	40	43	47	50
Expenditure Arising from Cap Expenditure	55	58	61	64	67
Okoh Salary Revision	392	1,017	1,068	1,121	1,177
	15,383	17,491	18,925	20,332	22,045

Table 12–4 Summary of Recurrent Expenditure Resulting from Development Projects (R'000)

	1970/71	1971/72	1972/73	1973/74	1974/75
Agricultural Department	–	89	161	235	259
Community Development	–	25	40	53	69
Co-operative Division	–	3	3	4	3
Education Department	–	465	746	903	1,002
Game Department	–	42	46	49	51
Government Printer	–	7	7	7	7
Geological Survey	–	113	148	167	164
Home Affairs	–	16	24	38	82
Shashe Complex	–	78	109	282	308
Interdepartmental Projects	–	55	90	123	136
Information and Broadcasting	–	1	4	4	5
Local Government and Lands	–	14	22	7	8
Medical Services	–	148	220	266	330
Police Department	–	7	14	19	24
Posts and Telegraphs	–	2	7	10	12
Public Works	–	16	46	104	119
Veterinary Department	–	14	82	105	165
Water Branch	–	36	57	316	322
Weights and Measures	–	22	22	22	22
TOTAL	–	1,153	1,848	2,714	3,088
Recurrent in respect of unallocated capital expenditure				262	788
	–	1,153	1,848	2,976	3,876
Total Actual recurrent assuming 75% shortfall on development expenditure	–	885	1,630	2,600	3,550

Table 12–5 Estimated Revenue from Internal Sources (R'000)

Source	1970/71	1971/72	1972/73	1973/74	1974/75	*Explanation*
Customs, Excise and Sales Duties	4,600	7,620	13,050	19,780	18,990	Related to mining development
Mining Revenue	16	799	1,589	1,589	3,524	
Income Tax	2,137	2,510	2,488	2,760	3,054	Influenced by Cattle throughput
Export Tax & other duties	358	379	436	456	480	Influenced by cattle throughput
Licences	347	368	405	537	472	Increasing at 8% p.a.
Earning of Departments	580	615	675	736	785	Increasing at 8% p.a.
Posts & Telegraphs	1,143	1,248	1,385	1,522	1,659	Based on 12-15% increase in subscribers.
Revenue from Government Property	822	858	905	940	980	5% up to 72/73, afterwards 4% reflecting operation of Housing Corporation.
Fines	58	56	68	73	79	Various
Reimbursements	121	138	173	221	270	Various
Loan Repayments	370	365	356	348	2,903	Related to planned Government Loans
Interest	100	100	121	139	167	Various
Miscellaneous	52	52	55	60	60	Various
	10,706	15,608	21,706	29,161	33,423	

Table 12–6 Summary of Financial Projections (R'000)

RECURRENT BUDGET	1970/71	1971/72	1972/73	1973/74	1974/75
Recurrent Expenditure to maintain existing Services	15,383	17,491	18,925	20,332	22,045
Recurrent Expenditure resulting from development projects	–	885	1,630	2,600	3,550
Total Recurrent Expenditure	15,383	18,376	20,555	22,932	25,595
Estimated Revenue from internal sources	10,706	15,608	21,706	29,161	33,423
U.K. Grants	4,285	2,768	–	–	–
Total Recurrent Revenue Insight	14,991	18,376	21,706	29,161	33,423
Surplus on the Recurrent Budget	–	–	1,151	6,229	7,828
Shortfall on the Recurrent Budget	392*	–	–	–	–
DEVELOPMENT BUDGET					
Total Expenditure on Development Projects	10,045	20,829	27,785	23,143	13,444
Development Revenue insight:					
(a) External Sources	6,091	13,786	17,945	10,750	500
(b) Commercial Loans	3,027	221	70	42	34
(c) Capital Export Levy Fund	22	24	26	28	30
(d) Sale of Produce	35	35	35	35	35
(e) Miscellaneous	5	–	–	–	–
Total Development Fund Revenue	9,180	14,066	18,076	10,855	599
Shortfall on the Development Budget	865	6,763	9,709	12,288	12,845
Overall Shortfall	1,257	6,763	8,558	6,059	5,017

*Application has been made to U.K. for an additional grant to meet this cost.

PART II

Description of the Public Expenditure Programme

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Self-Reliance

"If we are to progress as a nation, we must free ourselves from dependence on external aid. For Botswana this means in the first instance freedom from the need to seek aid for our annual budget.

"If we are to be free to determine our own social and political philosophy, we must depend on our own efforts. Only if we ourselves exert all our efforts to build Botswana, will Botswana be built in the way we wish it to be built."

"We must strengthen our links with our brother African countries who face the same problems as ourselves."

"Africa needs to seek aid from the developed countries. But we must demonstrate to donor-nations that we shall not be seeking aid for ever. We are seeking only that aid and investment from abroad which will enable us to stand on our own feet."

SIR SERETSE KHAMA, MARCH 28TH 1970

Introduction

In Part I of the Plan a general analysis of the Botswana economy is presented and the Government's development strategy is explained. In Part II the proposed public expenditure programme for 1970/75 is described project by project, indicating the phasing of expenditure over the next five years. It has not been possible, however, to specify all projects to be started after 1971/72. Undoubtedly new projects, as yet unforeseen will be formulated in the period 1972/75 and these will be included in the revision of Plan to be undertaken in 1972.

The present phasing of expenditure suggests that the development effort will decline over the five year period. In fact the opposite will occur, since it is anticipated that not more than 75% of the expenditure planned for each year (other the. that related to the Shashe Complex) will be achieved and the unspent balance will be carried forward to the following year.

It will be noted, however, that expenditure on the Shashe Complex dominates the public expenditure programme which will achieve a level in the period 1971/74 which cannot be maintained.

For ease of reference a simple system of classification of the projects has been adopted. The projects are listed by Government department, which are arranged in alphabetical order. Each project has a code number consisting of two capital letters (representing the department responsible for implementing the project) and two digits representing the number of the project within the department). The code number does not indicate the priority of the project; as far as possible, to avoid confusion, the code numbers used in previous Plans have been retained wherever a project is being continued. Where earlier projects have been completed, terminated or revised, this is indicated.

It is important to emphasise that the implementation of the public expenditure programme is dependent on securing external finance. As indicated in the first table, a significant part of the finance required is already in sight; the remainder is still to be raised. Furthermore, the ability of the Government to provide the recurrent finance will depend on fulfilling our targets for revenue derived from local sources. No projections have been made in the tables in respect of loan service charges; provision for this will be made under the public debt item in the Recurrent Budget. Due to the long repayment terms debt servicing will only become significant towards 1980 in respect of loans disbursed during the Plan period.

AGRICULTURE

I. BOTSWANA AGRICULTURAL COLLEGE

AD01 Agriculture Demonstrator Training College

Project completed.

AC01 Expansion of the Botswana Agricultural College

In view of the dependence of Botswana on its livestock industry it is essential that adequate provision be made for the training of animal health extension workers. A pioneer effort in this field was made with the establishment of a small veterinary school at Ramatlabama in 1954. It has been found that the development of this school at Ramatlabama would be expensive and difficult due to its relative isolation. It is therefore now planned to expand the Botswana Agricultural College to cater for this type of training, and also to provide or expand a number of additional facilities which will permit the level of instruction to be raised. A primary merit of this scheme is the economies that will be effected by following a course aimed at maximizing both physical and instructional integration. This expansion will provide, when completed, the first multi-purpose higher education institution in Botswana and will be capable of producing trained personnel at a variety of levels throughout the agricultural sector. During 1970 it is hoped to complete the design stage which will permit a more accurate detailing and phasing of the costs which are as yet tentative.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	91,600	137,700	57,700		
Recurrent		5,000	30,000	35,000	35,000

II. DIVISION OF EXTENSION SERVICES

AD02 Expansion of Extension Services

This scheme provides for the continuing needs of agricultural demonstrators who have passed through the Botswana Agricultural College. The object is to provide each demonstrator with housing and farm implements in order that he may fulfill his designated role. In the past the agricultural extension service has concentrated on increasing the membership of the Pupil Farmer and Pupil Stockmen Schemes. Under these schemes farmers, in return for practising rules of good crop and animal husbandry, receive loans (administered by the N.D.B.) for agricultural implements and animal husbandry equipment, free seed (during their first year only) and help and guidance in their farming operations. The number of farmers in these two schemes total about 4,800, rather less than 10% of the estimated total of 50,000 active farmers. This fact, combined with some fundamental rethinking of the aims of the extension service, its method of operation, its administration and its geographical distribution all underlayed by the need for cost effectiveness, is giving rise to a decreased emphasis on the above mentioned schemes. In short as the extension service approaches what is presently considered full strength, the aim will increasingly be to maintain a uniform national coverage upon which certain high potential areas will receive intensive treatment. This pattern will be determined by an increasing dependence on accurate and meaningful land use planning in its broadest sense. After 1974/75 the basic needs of the extension service will have been met and further capital expenditure will be geared to individual project developments or regional schemes.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	50,000	64,500	35,000	40,000	45,000
Recurrent		25,000	50,000	75,000	100,000

AD03 Mahalapye Rural Training Centre

Project Completed.

AD05 Agricultural Broadcasting

Project completed

AD10 Cotton Marketing

Project completed

AD13 Mechanized Fodder and Ploughing Unit

Project completed.

AD17 Naragha Valley Pilot Settlement

Project completed

AD21 Prison Irrigation Scheme

Project completed

AD26 Fisheries Development

Project completed

AE01 Rural Training Centres

The success of the two Rural Training Centres currently in operation has proved the necessity of widening this means of extension work. The value of these centres lies not only in the technical matter taught to farmers but also in instilling in farmers the value of learning in groups. Agricultural Demonstrators find that their field work is facilitated when dealing with farmers who have attended courses at these centres and the farmers themselves are loud in their praise of the instruction

received. The centres in addition to fulfilling this their central role, are widely used for holding in-service training courses for the Division of Extension staff and teaching programmes arranged by other Government Departments, notably Education and Community Development. It is therefore planned to establish three further 32-bed centres between 1970/71 and 1974/75 at Maun, Francistown and Kanye.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	74,800	–	68,000	–	70,000
Recurrent	–	17,000	17,000	34,000	34,000

AE02 Development of Fisheries in Southern Botswana

During the past three years a Development-of-Fisheries project has been progressively implemented in Ngamiland under the supervision of a fully qualified Fisheries Officer, and fifteen fisheries stations have been established. At each station a Fisheries Assistant is responsible for encouraging people to catch and eat fish. All types of equipment are sold at low prices to people who express an interest and avail themselves for instruction. This project however has concentrated its efforts in the North and West of the country where the natural conditions favour fish production, it has not attacked the problem of encouraging fishing and fish eating in the dams and artificial waters of the drier Eastern sector. In these areas the dietary intake of fish and fish products is extremely low and extension work on the development of fishing as a livelihood has hardly begun. There are already some thirty dams operating in the eastern part of Botswana and construction of many more is now being undertaken by the Land Use Planning Unit of the Ministry of Agriculture. To carry out effectively a stocking programme it is proposed to set up a mobile unit, operative mainly in the east and based on the Gaborone Dam. The mobile unit would be responsible for stocking of suitably prepared waters and for the subsequent management of the fishing. Where there is a local population, they would be instructed in appropriate fishing techniques and advised on management. Where no fishermen are available, cropping of the dams will be carried out by the unit and the fish sold to suitable middle-men for resale to the public. The resultant revenue will be re-invested in the project.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	7,025	4,092	4,200	–	–
Recurrent	–	–	–	4,300	4,300

III. DEPARTMENT OF ANIMAL HEALTH AND DISEASE CONTROL

VE01 Caprivi Border Fences

Project completed.

VE02 Disease Control Fences

As the borehole development programme extends further into the Kalahari (it has already passed the long considered divide of the Kalahari escarpment) it brings in its wake an increased cattle and human population. When the original disease control network of fences was constructed, some fifteen years ago it was considered sufficient to leave the Kalahari ends of these fences open. During the present plan period settlement and cattle posts are expected to encroach sufficiently into the Kalahari to justify the joining up of the Debeete, Makalamabedi and Central Ngwato fences at an estimated capital cost of R45,000.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	–	45,000	–	–
Recurrent	–	–	–	500	500

VE06 Artificial Insemination Scheme

In order to raise the quality of the national herd a widespread artificial insemination scheme is being implemented. During the three year capital investment phase of this project, during which recurrent costs are capitalised, six artificial insemination centres and a bull camp will have been built, each capable of holding 600 cattle. Three are already in operation. It is necessary to hold the cows in camps in order to control the environment and to exclude bulls. The period of confinement is four months in order to permit acclimatisation and reduce the likelihood of anoestrus, to permit the feeding of mineral supplements, to allow easy veterinary examination, to permit pregnancy diagnosis and to allow servicing by selected bulls where artificial insemination has failed. Each camp will be fully staffed and artificial insemination assistants trained. The first twelve such assistants are just completing their first year of instruction. The entire programme is administered by a senior veterinary officer, one veterinary officer and three insemination technicians. In addition to charging fees for the service, farmers wishing to conduct artificial insemination on their own farms are given every aid to ensure success. Subject to the availability of funds it is planned to further expand the network of artificial insemination centres under a phase two project commencing in 1973/74.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	123,745	105,200	–	120,000	120,000
Recurrent	–	–	27,800	60,000	60,000

VE07 Foot and Mouth Disease Research

Project completed.

VE08 Hides and Skins Improvement

Botswana currently exports over 180,000 skins annually. At present few facilities exist for the preparation, processing and marketing of hides and skins and the majority of the population is ignorant of the best techniques to use in this work. This constraint combined with a lack of financial incentives results in the quality of the final article being poor and unable to command a good price. It is therefore planned to establish an extension service with modest processing means together with adequate export facilities; the latter in order to attract major hide buyers who it is anticipated by bidding up prices would provide the necessary financial impetus. These problems have been investigated by an F.A.O. expert and this project is partly based on his recommendations. Further enquiries are to be conducted and the Malawi structure is to be examined in detail.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		120,000	35,000	25,000	
Recurrent					35,000

VEC9 Phuduhudu Holding Ground

Project completed.

VE10 Tapeworm Eradication Campaign

This project is aimed at the eradication of tapeworms in humans, by persuading the population to adopt proper sanitary measures. Such a process is the vital prelude to reducing the incidence of measles in cattle, which at present affects a significant proportion of the cattle slaughtered by the Botswana Meat Commission. During 1968/69 the campaign made an auspicious start and launched a national advertising programme. It is planned to continue this exercise during 1970/71.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	3,300				
Recurrent					

VE11 Streptothricosis Control

Project completed.

VE12 Animal Health Training

Project changed and renumbered AC01.

VE13 Kuli-Nojane Stock Route

Project completed.

VE14 Makalamabedi Grazing Scheme

Extensive economic investigations led to the abandonment of this scheme.

VE15 Ghanzi to Lobatse Stock Route

Project completed.

VE16 Veterinary Diagnostic Laboratory

This project is to provide finance for a small expansion to the veterinary diagnostic laboratory in Gaborone in order to provide adequate accommodation and facilities for recently recruited staff and new equipment purchased under the project Trace Element Survey (VE18).

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	7,000	–	–	–	–
Recurrent	–	100	100	100	100

VE17 Improvement of Veterinary Services

Project renumbered, please see AH01.

VE18 Trace Element Survey

Project completed

VE19 Development of Rural Abattoirs

Project renumbered – please see AH02.

VE20 Makalamabedi to Francistown Stock Route.

Project completed.

VE21 Veterinary Service Depots

Project renamed and renumbered – please see AH03.

VE22 Odiakwe Quarantine Camp

1970/71 is the terminal year of a project under which a major exapnsion of the Odiakwe Quarantine Camp is taking place. This expansion was caused by a change in the pattern of cattle marketing from Ngamiland. In short this change was simply a rapid upsurge, since the 1968 export season, of immatures coming out of Ngamiland to be fattened elsewhere. This trend is expected to continue and during 1968 led to the severe overgrazing of the Odiakwe Quarantine. This dictated the need to expand the camp in order to avoid complete denudation of the grazing.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	3,000	–	–	–	–
Recurrent		–	–	–	–

VE23 Okavango Pontoon

Project completed.

AH01 Improvement of Animal Health Services

During 1970/71 it is planned to provide the Division of Animal Health and Disease Control with eleven two-way radios. Radios will be based at each quarantine camp and at selected district

headquarters. The implementation of this communications improvement is in line with those carried out by other Departments with extensive field responsibilities. At present animal health training is carried out at a small training school at Ramatlabama and the first group of fully trained animal health assistants is expected in 1971. Officers will be of similar status to agricultural demonstrators and likewise stationed in the field. It is therefore planned to provide them, as is already done for agricultural demonstrators, with suitable cheap but permanent field quarters. The increase in this annual capital commitment after 1971/72 is a response to the increased numbers of such assistants that will be trained following the expansion of the Botswana Agricultural College under project AC01, to which reference should be made.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	6,600	12,000	28,000	28,000	28,000
Recurrent	–	–	3,000	10,000	20,000

AH02 Rural Abattoirs

At present village abattoirs exist at Francistown and Lobatse only. Throughout the rest of Botswana animals for village meat supplies are slaughtered and the meat sold in villages under unhygienic conditions regardless of the health of the animal and the consequences of eating infected meat. The problem is therefore one of hygiene, public health and rural meat supplies. It is planned to construct simple sheltered slaughtering slabs in a number of villages (10 in the first year and ten in the second year). Once these abattoirs have been established and are running efficiently it is planned to pass the administration of them to the District Councils who will also receive the income, initially either 10c per bovine head or 5c per goat, sheep or pig. These rural abattoirs will be erected in close proximity to the proposed village hide drying sheds in order to enable preservation and preparation to be carried out in the correct manner (see scheme VE08 Hides and Skins Improvement). The implementation of this scheme will permit the slaughtering and sale of meat to take place in hygienic conditions. The flaying of the carcases will be supervised thus ensuring the highest value of this by-product to the owner. Whilst the whole scheme will be subject to veterinary inspection it is also planned to train Abattoir Attendants in basic meat inspection principles and to familiarise them with the basic pathological conditions which they are likely to encounter. A very thorough training will be given in measles detection in particular, in order to reduce the human incidence and thus the animal incidence of this economically very serious disease.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	6,300	5,700	12,000	–	–
Recurrent	–	–	–	–	–

AH03 Animal Health Service Centres

During the past few years there has been a sharp, almost dramatic rise in the value of livestock to the producer, and with this a growing awareness on the part of the livestock owners of the advantages of minimising the economic losses caused by deaths and disease through the use of prophylactic vaccines and veterinary remedies. This awareness has also been fostered by the activities of the information services of the Ministry of Agriculture which give advice and information to stock owners regarding the effects of disease, suitable control measures and good management practices. For the livestock population as a whole Government provides a free vaccination service in respect of Anthrax and Quarter Evil throughout the country and Foot and Mouth Disease in the two disease prone areas of the North. It cannot however provide free vaccination to control other diseases such as botulism, paratyphoid, parasitism and other diseases which affect the productivity of stock. In an attempt to help stockowners offset the economic losses caused by these diseases and conditions, the Division of Animal Health and Disease Control has, for some years, operated a resale service for vaccines and stock remedies not otherwise available in the country. Of necessity this service has operated from a poorly located and cramped central store in Gaborone and from one mobile retail unit based in Gaborone. Despite these limitations, however, the increase in turnover has been quite remarkable, rising from R5,163 in 1966/67 financial year to R14,658 in 1967/68 and to R33,534 in 1968/69. Nevertheless the unsatisfied demand from the many areas inadequately covered or not covered at all indicates that, given the retail facilities, storage, accommodation and administrative staffing, the service could be much extended. It is therefore planned to expand this re-sale service in order to cover all the main stock producing areas in the country and at the same time to fully integrate it with the animal health and disease control services.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	71,252	45,432	49,167		
Recurrent		13,700	23,500	33,600	34,800

AH04 Vakoronga/Tuli Circle Fence

In the extreme eastern corner of Botswana the boundary between Botswana and Rhodesia is unfenced for some 100 miles, whilst the West Nicholson District of Rhodesia is a Foot and Mouth Disease enzootic area. Botswana possesses no defence in this area against the spread of Foot and Mouth: indeed should such occur the first line of defence within Botswana is the Debeete Cordon, separating Northern and Southern Botswana, which lies some 250 miles to the south. There is at present a significant degree of intermingling of Rhodesian and Botswana cattle in this area along the Shashe river. Owing to the length of this open border and the cattle watering situation it is considered that the only practical method of control is by fencing. Thus during the present plan period it is proposed to erect a fence of suitable quality that will be regularly patrolled by disease control personnel based at Francistown.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	–	49,900	–	–
Recurrent	–	–	–	1,000	1,500

AH05 Ghanzi Quarantine Camp

The Ghanzi District is one of the main livestock producing areas of Botswana. It lies some four hundred miles northwest of Lobatse and the BMC Abattoir. At present the bulk of the cattle are trekked on the hoof from Ghanzi to Lobatse for slaughter or to the Molopo farms for fattening. At Phuduhudu roughly half way along this trek route there is a recently constructed quarantine which at present answers the strict needs of disease control. There is however a growing tendency to truck cattle from Ghanzi to the South and preliminary investigations indicate that this practise is likely to increase. Planned improvements to this road will further encourage trucking. Should, as is anticipated, the motorised movement of cattle assume major proportions it will be necessary to quarantine the cattle prior to their departure from the Ghanzi District. To this end it is planned to construct a quarantine camp in the extreme south-east of the Ghanzi District which will be capable of holding all the cattle exported from Ghanzi, plus the growing flow of livestock from the Kuli/Nojane/Kalkfontein area in the extreme west of Botswana.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	–	–	40,000	–
Recurrent	–	–	–	–	3,000

AH06 Performance Testing

This project is closely related to scheme VE06 Artificial Insemination. To be able to assess the value of the latter scheme it is necessary to measure the performance of the first-cross AI progeny and the performance of the progeny from the cross-bred AI bulls. The objective of measuring AI progeny is to provide an estimate of the breeding value or genetic worth of an animal relative to others in a given herd. To obtain the maximum association between estimated and actual breeding value, traits must be measured under conditions where major environmental effects can be either physically controlled or adjustments made for them. As it is not possible to measure all AI progeny under ideal conditions it is planned to carry out this work partly on the bull station, to be built in connection with the AI Scheme, and partly by follow up action in the field. It is, therefore, planned to purchase the necessary equipment, namely a vehicle and cattle scales and a number of selected bull calves in order that this work may proceed. The recurrent costs of this project have been capilised for the first three years of its life.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	15,000	10,000	10,000	–
Recurrent	–	–	–	–	10,000

IV. DIVISION OF ANIMAL PRODUCTION

AD07 Demonstration Ranches.

Under this scheme six demonstration ranches have been set up in the important cattle producing areas of the country. Each ranch is approximately 5,000 acres in extent, fenced and divided into paddocks. The ranches accept cattle from farmers on a short term basis in order to fatten them prior to slaughter. The cattle are largely local Tswana types and receive no benefits other than expert management. In this way it is hoped, through the strong demonstration effect, to heighten the awareness of the average stock owner to the improvements in weight and thereby value that are possible under controlled grazing conditions. Modest fees are charged for this service with a view to these ranches becoming self-financing after their initial establishment periods. During 1970/71 it is planned to build the seventh and final ranch in the current programme.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	9,960	–	–	–	–
Recurrent	–	2,900	3,500	5,500	5,500

AD14 Animal Husbandry Experimental Herds

Project completed.

AD15 Mobile Animal Husbandry Teams

During 1967 a pilot Animal Husbandry Mobile Unit was launched in Ngamiland and met with tremendous success. Since then a further properly equipped unit has been successfully established. It is, therefore, planned during 1972/73 to establish a further team and to capitalize the recurrent costs until 1974/75. Each team consists of one Agricultural and Livestock Officer and twelve Demonstrators, equipped with a truck, two lorries and a stock of simple animal husbandry aids which are sold on demand. Each team covers twelve areas each area comprising six boreholes. Each of the twelve demonstrators spends one week in each area before repeating the cycle, advance notice having been given to the inhabitants of each area. The work of each demonstrator consists of teaching farmers and herd boys how to castrate, de-worm, spray, de-horn and dose cattle and in the giving of instruction on simple but improved management techniques. During 1971/72 it is planned to carry out an evaluation of this project using an appropriate cost-benefit technique in so far as the continuation of this type of individual extension must be tested and found cost effective if its continued expansion is to be justified.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	28,830	–	45,900	18,000	18,000
Recurrent	–	9,000	9,500	9,500	9,500

AD20 Breeding Herds for Demonstration Ranches

Project completed.

AP01 Animal Husbandry Field Investigations.

Despite the high importance of the livestock sub-sector no field investigations have yet been carried out on animal husbandry practices. At present it is thought that management practices represent, despite the efforts of the extension service, a major obstacle to increased productivity. Whilst the technical aspects of management can in theory at least be resolved their implementation is often obstructed by a series of environmental and quasi-sociological constraints. It is, therefore, planned to examine in detail these constraints by developing a simulated 'cattle post' and a simple fenced ranch and to conduct investigations into the effects of changed husbandry practices under both conditions, with a view to providing better information to the extension services. The planned expenditure during 1970/72 relates to the purchase of fencing and other materials, the drilling and equipping of a borehole and the purchase of experimental cattle.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	20,500	18,500			
Recurrent		2,500	3,000	3,000	4,000

AP02 Animal Husbandry Research Station

It is anticipated that as the level of both Government and private investment in the livestock sub-sector increases and the national herd expands, a range of detailed technical livestock production problems are likely to be encountered. Significant among these will be methods and types of supplementary feeding. It is, therefore, planned to erect during the current plan period an animal husbandry research station which will complement the national structure of agricultural research stations which in large measure concentrate on the pressing problems of food production and pasture research.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		15,000	10,000		
Recurrent			1,000	1,000	1,500

AP03 Livestock Marketing/Auction Kraals

The past few years have seen a marked increase in the price of cattle in Botswana. This increase, however, has not been uniformly spread across the country. Close examination has shown that the increases in prices have been greatest where regular and controlled auction sales have been instituted. Such auctions are able to attract a sufficient number of large buyers who, by a process of competitive bidding have consistently raised prices. District Councils are keen to see such auctions instituted in their respective areas. It is, therefore, planned in line with the Ministry of Agriculture's policy of promoting controlled and orderly marketing, to erect a series of sales kraals around the country. The auctions and kraals will be administered by the District Councils and Government will receive an agreed percentage from each sale in payment for the capital costs of erecting the auction pens.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		30,000	30,000	30,000	30,000
Recurrent					

AP04 Sunnyside Farm Improvements

Sunnyside Farm was bought by Government in 1965 to accommodate herds of Brahman and Afrikaander cattle from which bulls are bred for sale through the Bull Subsidy Scheme. The farm is 4,200 acres in extent and is divided into eight large camps and several small hospital paddocks. Boswelatlou, also a Government farm in need of improvements, borders the western boundary of Lobatse and is 4,000 acres in extent. The farm has been divided into five camps, but the sole source of water is a spring at the north west extremity of the farm and there are no facilities for water reticulation. As a result, two of the paddocks on the farm cannot be used. A great deal of money has been spent annually from the Cattle Export Levy Fund subsidising the purchase of bulls from Botswana farmers under the Bull Subsidy Scheme. It is considered that if the breeding herds already available with the addition of a Tuli herd which has been purchased, were properly utilized, Government could continue to supply both bulls and top quality breeding stock to farmers in Botswana (who need aid to help them build up their herds) at a much lower cost to Government than the present Bull Subsidy Scheme. It is therefore planned to divide Sunnyside into twelve large camps plus three small camps for calves, thus enabling proper control of Afrikaander, Brahman and Tuli herds and to pipe water away from the spring at Boswelatlou so that the whole farm can be used for growing out young bulls and heifers. It is estimated that with these improvements, the two farms should be able to provide fifty top quality bulls and forty good breeding cows annually.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	7,040	–			
Recurrent		300	300	300	300

AP05 Evaluation of the Tswana Herds

Botswana is a semi-arid country ideally suited to cattle ranching. Livestock and livestock products currently contribute 75%, by value, of the country's exports. It is Government policy to increase the productivity of the livestock sub-sector as rapidly as possible by encouraging improvement in the quality of livestock and by a gradual expansion of the national herd. The latter objective can be realised by opening up new areas to grazing. A significant improvement in quality can be achieved by raising the standard of management and nutrition and both these aspects are receiving priority attention in the animal husbandry extension programme. A further major factor to be considered in order to achieve optimum improvement in livestock productivity is the breeding policy to be advocated to farmers. Over the past thirty years a variety of breeding policies have been followed. The most consistent policy has been to recommend the use of grade and pedigree Afrikaander bulls, but at periodic intervals encouragement has been given to the introduction of various exotic breeds such as Sussex, Hereford, Shorthorn, Redpoll, and Simmenthaler. In recent years attention has been focused on the introduction of Brahmans and Brahman crossbreds, particularly through the medium of artificial insemination. Despite the attention that has been paid to the introduction of various exotic breeds little attention has been paid to the improvement and evaluation of the indigenous Tswana types. There is a real danger that, if the present reliance on introducing new breeds is continued, the Tswana type cattle may virtually disappear during the next quarter of a century. In addition, there is evidence to suggest that unless a radical improvement in management accompanies the introduction of new breeds, the traditional constitutional vigour of the Tswana animal will be bred out. It is, therefore, planned, in view of the supreme importance of livestock to much of the population, and the urgent need to achieve the highest plane of livestock productivity compatible with the limitations of the environment, to undertake a comprehensive, scientific evaluation of the Tswana herd.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	102,498	42,228	24,938	–	–
Recurrent	–	–	–	3,000	1,000

VE03/04/05 Livestock Improvement Subsidy Scheme

This scheme was aimed to improve the quality of the national herds of cattle, sheep and goats and to a more limited extent, Karakul sheep by selling to farmers at subsidised prices, improved specimens of the breeds in question. Improvement has been effected by the establishment of pedigree herds in the case of bulls, cross breeding of Dorper Rams for sheep and the same for Boer Goats and by selective breeding with Karakuls. This will reach the end of its planned life in 1970/71.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	7,500	–	–	–	–
Recurrent	–	–	–	–	–

V. DIVISION OF AGRICULTURAL RESEARCH

AD08 Central Research Station

Crop research work in Botswana commenced in 1947, when a small experimental station was established at Mahalapye. During the next twenty years, three other small experimental stations were established to serve major agro-ecological regions. In 1968 a Central Agricultural Research Station was established utilising a grant from British Development funds. The major objectives of the Central Research Station are as follows:–

(a) to provide reasonable facilities for the investigation of complex soil fertility problems;

(b) to provide adequate laboratory facilities for specialists provided under the ODM Technical Assistance Programme and United Nations Development Programme;

(c) to provide reasonable facilities for specialists covering a range of scientific disciplines, to undertake experimental trials.

It is also planned to commence an experimental programme involving various cultural methods of moisture conservation, together with an investigation of the latest multipurpose tool bar equipment. This investigation is now urgently required as a result of the increasing number of farmers with insufficient numbers of draught oxen to pull the traditional heavy ploughs. The use of donkeys as an alternative source of draught power for the inheeled multipurpose tool bar will take high priority in this programme. In short there has and will continue to be a marked expansion in the agrigultural research programme. Thus in 1970/71 the phase two buildings for this station will be completed and in 1972/73 the phase three structures commenced.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	15,550	–	40,000	–	–
Recurrent	–	–	–	10,000	10,000

AD09 Crop Protection

This project has been replaced by projects AD18, AD19 and AD22.

AD11 Pilot Irrigation Settlement

This scheme was first planned for 1967/68 and certain capital equipment items were purchased in anticipation of the project being put into operation. Investigations then underway concerning the utilisation of water from the Shashi River proved abortive and since that time the scheme has lapsed pending the discovery of an alternative site. It is planned however, to recommence this scheme in 1970/71 on a site near Kasane on the Chobe River. Essentially the scheme will assess the potential for irrigation in Botswana studying in particular the human and practical problems of farming under the strict regimen and disciplines essential to successful irrigation farming. The scheme will be directed by an irrigation agronomist who will also be responsible for the crop trials on the experimental area. The occupants of the five-acre holdings will be required to observe the instructions of this officer, and they will be provided with necessary items such as seed, insecticides, etc. during their first year. Operators will be required to provide their own animal draught power and loans will be available for the purchase of other essential equipment. It is anticipated that the twenty settlers will form their own co-operative which will, in particular, undertake the marketing of the crops produced, mainly cotton, groundnuts, vegetables, seed potatoes and winter wheat. A soil and topographical survey have been carried out and the results are undergoing analysis. It is anticipated that the first stages of implementation will commence in mid 1970.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	30,000	15,000	15,000	–	–
Recurrent	–	–	–	5,000	5,000

AD12 Ecological Survey of the Kalahari

Project completed.

AD16 Sandveld Pasture Research

Project completed.

AD17 Naragha Valley Pilot Settlement

Project completed.

AD18 Grain Storage

Every year in Botswana considerable amounts of food crops are lost in storage due to insect pests. For this reason farmers tend to keep only enough grain for their immediate needs and traders do not maintain large storage facilities. In years of good harvest large quantities of grain are sold for export at low prices and then re-imported later in the year at higher prices. The net result is that consumers pay higher prices for their food and farmers receive lower prices for their produce than would be the case if more grain was stored by the farmer. To assist the farmers with grain storage a research programme has recently been launched to determine optimum methods of protection against pests. This project in 1970/71 provides for the continued employment of a grain storage specialist and storage engineer, together with necessary equipment and facilities, who are devising storage methods which can easily be adopted by peasant farmers. The

results of the past eighteen months' activity are already being felt in so far as a small team of "grain and storage" demonstrators is being formed with the aim of disseminating knowledge and techniques, recently tried and tested, directly to the farmer. This work has also served to confirm indications that in addition to pest control, grain production for market will not significantly increase until a satisfactory marketing and distribution system is found which will provide, not so much a price incentive, but a stable market outlet.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	32,838				
Recurrent		14,000	15,000	15,000	15,000

AD19 Entomological Research

Considerable damage is done each year to crops by pests. This scheme has been instituted therefore with the primary objective of devising practical methods of crop protection and pest control. The major objectives of this scheme upon which work is in progress are, firstly to undertake a survey of the main pests in such crops as cotton, sorghum, maize and pulses, concentrating on the biological aspects relating to their control; secondly to carry out a detailed study of cotton pests; thirdly, to produce material for use in demonstration and extension work and finally to train nationals in pest survey and control work. Work commenced in April, 1968 and will be intensified during the coming crop season of 1971 prior to its absorption into the Ordiary Budget.

	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	12,705				
Recurrent		9,000	10,000	10,000	10,000

AD22 Quelea Control

Every crop season in Botswana, vast amounts of damage are caused to grain crops by large flocks of quelea birds. Destruction of these pests in the past has been on an ad hoc basis and has proved unsuccessful. Following recent specialist advice a programme has been instituted to further study the migrations and habits of these weaver birds and the effectiveness of various control measures. The centre of the research in Botswana (this scheme is linked to similar programmes throughout East Africa) is at Maun. During 1969/70 certain preliminary work took place in readiness for more concerted efforts in 1970/71 when the necessary equipment will be purchased and brought into operation. During the course of the project two locally recruited field assistants will be trained in relevant techniques by the bird ecologist responsible for the project. These two trainees, it is hoped, will form the nucleus of a permanent quelea survey team.

	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	13,215	10,348	–	–	–
Recurrent	–	–	5,000	6,000	6,000

AD23 Pasture Investigations

This work is now being undertaken by the regular staff of the Ministry of Agriculture, following its withdrawal from the Development Budget.

AD24 Field Trials

This work is now being undertaken by the regular staff of the Ministry of Agriculture, following its withdrawal from the Development Budget.

AD25 Mopane Veld Research Station

The first crop experimental station was established at Mahalapye in 1946. Since then three additional sub-stations have been established to serve distinct ecological areas. A Central Research Station was established seven miles north of Gaborone in 1967. Information gathered from these stations has made a significant contribution to the impact of the extension service on the introduction of improved agricultural techniques. Due to lack of funds a sub-station has never been established to serve the large area of Botswana (approximately 50,000 sq. miles) dominated by mopane woodland (Colophospermum mopane). A certain amount of agronomic information obtained from the Mahalapye sub-station is applicable in the mopane area, but much applied research work must be undertaken before the extension service can be supplied with comprehensive information concerning those crop varieties, optimum plant populations per acre, fertiliser applications etc. which are necessary to obtain optimum yields from the rather infertile mopane soils. The rate at which improved methods of agriculture have been adopted in the mopane areas, is amongst the lowest in Botswana. This situation, in some part, is attributable to the fact that no experimental sub-station has yet been established north of Mahalapye in eastern Botswana. In addition to the lack of agronomic information, little is known of the pasture potential of mopane woodland. This area supports a large human and cattle population and if the full potential of the cattle industry is to be realised it is essential that comprehensive information on the water/soil/pasture/shrub relationship be obtained, in addition to information on the grazing potential of mopane veld. For this reason it is intended to establish a pasture research sub-station of approximately 1,000 acres adjacent to the crop research sub-station. The pasture research sub-station can be regarded as an outlying station for the Morale

Pasture Research Station. Simple trials to determine optimum carrying capacity of mopane veld, rate of denudation and rehabilitation under Botswana conditions will be undertaken, together with trials to investigate various methods of reducing the density of mopane by the systematic use of herbicides. Care will be taken that research work carried out in neighbouring countries and in related conditions, is not duplicated.

	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	17,965	–	–	–	–
Recurrent	–	3,000	3,500	4,000	4,000

AR01 Dry Land Farming Research

Although Botswana is primarily a pastoral country, the population relies heavily on arable crops, especially sorghum, for its food requirements. It is of considerable concern therefore that Botswana has failed to achieve self-sufficiency more than once in the last decade and that a large part of her population has received famine relief for considerable periods during that time. Whilst employment opportunities outside agriculture are improving, most of the population will continue to be dependent on the land and will remain undercapitalised small-scale farmers, vulnerable to the vagaries of a climate rarely suited to arable cropping. The most recent agricultural survey, 1968/69 illustrates very clearly the present situation of nearly 48,000 farm holders, 67% either did not plant or cultivated less than 10 acres. With sorghum (48% of all planted crops) averaging 260 lbs per acre, this means that ⅔ of Botswana's farmers failed to meet their families staple food requirements. In seeking the basic cause for the failure of the Botswana farmers, it is immediately apparent that shortage of potential arable land is not one of them, rather it is their inability to cultivate sufficient land in such a manner as to make the best use of whatever rainfall their lands receive and to husband their crops through to harvest. This project effectively comprises a request for a research team under technical assistance which will be required to study the factors limiting arable crop production in a semi-arid enviroment and to investigate means of improving the reliability of food crop production by small-scale farmers. It is proposed that the team composed of an agronomist, an agro-engineer and an entomologist should study crop/water relationships, soil management and control of certain major pests. The scheme has initially been phased over three years but progress will be reviewed and modifications made, if necessary, at the end of the second year. In addition to the team it is proposed, because of the shortage of basic agro-climatological data and the shortcomings of existing meteorological instrumentation, that a consultant should visit Botswana within the first six months of the scheme's life in order to advise on equipment and data analysis. This visit will aid the preparation of a preliminary agro-climatological study which is already in hand. This project will be financed under an O.D.M. Research allocation. It is expected that the total capital cost will be about R29,000 all of which will reach Botswana in the form of equipment. Salaries and other recurrent charges will amount to about R93,000 over the first three years beginning in 1970/71 and these costs will be paid directly by O.D.M.

VI DIVISION OF CO-OPERATIVE DEVELOPMENT

CO02 Co-operative Development Centre

The stage has been reached in the development of the Co-operative Movement in Botswana where the need is for consolidation of what has already been achieved combined with a steady and controlled rate of expansion into new fields. To meet these needs and problems it is accordingly proposed to take up, with necessary adaptations to the local situation, a suggestion first proposed by the International Labour Organisation, namely to establish a Co-operative Development Centre. This organ will act as a forum where the Societies, the Co-operative Development Trust and the Division of Co-operative Development may have a common meeting ground to formulate and co-ordinate policies and the activities of each. It will make it possible for Societies to participate in the extension, education and training work at present carried out entirely by the Division. Specifically work will be carried out on the basis of research into co-operative problems and the training and general education of society members. This project will be a United Nations Development Programme Special Fund exercise, executed by the International Labour Organisation in conjunction with the Botswana Government.

	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	162,837	–	–	–	–
Recurrent	–	3,250	3,500	3,500	3,500

VII DIVISION OF LAND UTILISATION

AD04 Dam Construction Unit

Project completed.

AD27 Small Dam Construction Unit

During the drought years a programme of constructing labour intensive stock dams was inaugurated, after the good rains of 1966/67 this programme was abandoned in favour of dam building by mechanised unit. The earlier programme, however, by maximizing community

effort and by encouraging local participation, successfully built seven dams. As a result of this experience a new small dam building unit was set up during 1968/69 and is operational in North Eastern Botswana. This unit seeks to expand the practice of building, improving and repairing small stock watering dams in co-operation with the local communities. It is planned, despite a slow start, for this mobile unit to construct, repair or improve one dam per month. Until 1972/73 the recurrent costs have been capitalised.

	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	29,440	13,431			
Recurrent			13,000	14,000	14,000

LU01 Livestock Industry Development Project Phase I

Nearly one half of Botswana is owned by the State. The State lands embrace the bulk of what is commonly known as the Kalahari Desert plus a large tract in the North lying between the Okavango and the Rhodesian border. Various surveys of both these blocks of land have been made, but the total data available is still small. The entire western region is a vast area in extremely delicate ecological balance, and uncontrolled exploitation would lead to the permanent degradation of this national asset. By eastern standards the area is also dry, receiving on average less than fourteen inches of rain annually. There is a total absence of surface water. Both areas of State land are also very sparsely populated. The effort to understand and learn about these areas has now been intensified and the prospects of controlled exploitation have much improved. It now seems probable that in several large areas underground water of a suitable quality can be found, albeit at great depth and that the plant cover will support grazing ratios of between one beast to 26 acres and one beast to 40 acres. It is, therefore, planned during the next five years to launch a series of planned settlements in the most environmentally suitable areas. Work is currently proceeding, in an attempt to determine the minimum size holding that will be economic and sufficiently profitable to satisfy the income expectations of potential settlers. Subject to the final evaluation of recent ecological, water and sociological surveys, it is planned to demarcate a number of farms (about 36 in the first instance) in three separate areas. Each new settler will be offered a loan to develop his ranch and be subject, at least in the short term, to leasehold tenure. Additionally, in the tribal areas it is planned to develop a series of commercial and fully viable, holding grounds which will offer controlled grazing facilities to the small cattle owner. Nine such holding grounds are planned, each capable of holding between one thousand and fifteen hundred head of cattle. They will be sited next to those areas of greatest cattle density and near to the line of rail, thus enabling the farmer to receive the full benefit of the weight gained by the cattle when they are ultimately slaughtered at the abattoir. It is anticipated that this process of development will be a continuing one and capable of absorbing as much loan finance as may be made available. Whilst this form of development will provide a handsome income to only a few people it will in a national sense bring presently unproductive resources into use and significantly increase the size of the national herd and the total productivity of the cattle industry. In the extreme south west of Botswana, in that part demarcated by the Molopo River in the south and the Nossob River in the west, lies a unique area. Here in severe climatic and physical conditions a small group of enterprising individuals have developed, over the past 30 years, an embryonic but thriving industry based on the farming of karakul sheep. This area is State Land and thus these people have no security of tenure. It is this insecurity that at present provides the chief obstacle to development and consequently steps are being taken to formalize this situation by the granting of long leases. Once this stage has been completed the second constraint will have to be overcome, namely development finance. At present there are some thirty farming families who by mutual agreement each have their own farming territories. These farms are already producing Karakul pelts worth about R60,000 per annum and marketed through the only outlet in Southern Africa, the South African Karakul Co-operative. Already the area is receiving assistance through the Livestock Improvement Subsidy Scheme and the Borehole Repayment Scheme, but this is assistance without guidance and is also superimposed on an unplanned development process. It is, during the present plan period, intended to assist the present farming community, first to rationalise their settlement pattern and second to gradually expand the number of farms towards an as yet arbitrary target of one hundred. The first stage of this development, following the granting of leasehold title and the accurate demarcation of the farms will be the granting of development loans in order that the settlers will be able to properly fence and water their farms. Concurrent with this stage will be the establishment of advisory facilities by Government. Preliminary estimates to be confirmed by the results of a survey completed in December, 1969, indicate that the demand for loan funds in the next five years alone will be about R390,000 and that during the plan period the value of the output will expand to reach a figure of about R300,000 per annum. It is planned to have completed all negotiations and planning for the project

by the end of 1970 and to commence implementation during early 1971. The project will be phased over a five year period in the first instance but consideration is already being given to a second phase project scheduled to overlap the first and begin in 1973/74.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	561,000	513,000	492,500	100,000
Recurrent	–	–	–	–	–

LU02 L.B.R.D. Livestock Settlement Scheme, Phase II

Part of the Phase I project will be devoted to research, evaluation and further investigations aimed at the detailed planning of the second phase. Information available at present indicates that the second phase will consist primarily of an expansion of the settlement schemes begun under the first stage along with certain planned improvements of the trek-route system and possibly an expansion of the role that co-operatives may play in the settlement process. The capital expenditure figures given below should only be regarded as tentative at this stage.

	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	–	–	–	600,000	600,000
Recurrent	–	–	–	–	–

VIII DIVISION OF PLANNING AND STATISTICS

AD06 Agricultural Statistics

The collection of accurate agricultural statistics is an essential prerequisite of sound economic planning. The 1967/68 and 1968/69 National Agricultural Sample Surveys will be utilised as benchmarks, but it is important that sufficient annual statistics are collected to enable any change of trends in the agricultural sector to be identified early and accurately. To this end and already begun, is a programme of annual sample surveys which will serve to update the 1967/68 and 1968/69 base data until 1972/73 when a further national census will be mounted. During 1970/71 it is planned to carry out Botswana's first Livestock census which will provide a range of base data about the livestock industry hitherto largely unknown or crudely estimated. This exercise will be repeated in 1973/74, when a further agricultural sample survey will be carried out, the latter exercise being repeated in 1974/75. The recurrent costs of these surveys have been capitalised.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	21,362	7,000	19,000	20,000	8,000
Recurrent	–	–	–	–	–

Community Development

CM01 Community Development Field Staff

This project has been terminated.

CM02 Training for Community Development Assistants

In order to carry out a programme of rural development, a strong and effective staff of Community Development Assistants is needed. In 1970 there are 46 CDAs and 50 temporary CDAs working in the field under the supervision of one Community Development Officer, 5 Assistant Community Development Officers, and 11 Senior Community Development Assistants. To achieve national coverage the long-term objective is to have one CDA per 350 families. The intention of this programme is to upgrade the 50 temporary CDAs and to train an additional 15 CDAs per annum. By the end of the plan period there will be 170 CDAs per 620 families.

To achieve maximum efficiency and cost-effectiveness this programme will be co-ordinated with Co-operative Development Centre, the Botswana Agricultural College Training programmes, and with the Denman Rural Training Centre. Teaching facilities required by this programme at Denman are adequate; however, additional dormitory accommodations are needed, and more staff must be hired and equipment purchased. It is intended to erect housing for the CDAs at their stations once they have completed the course and to supply each regional headquarter for the Community Development Department with four vehicles to assist the CDAs in this work. It is proposed to start this programme in 1971. Recurrent costs arising from this programme will be met from the Ordinary Budget.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	35,500	17,500	17,500	17,500	17,500
Recurrent		13,300	26,500	39,700	53,000

CM03 Youth Training Programme

For many years to come the formal educational system will not be able to cope with the training needs of a large number of young people: provision is, therefore, made for out-of-school training. This project provides for assistance for the Kanye and Lobatse Youth Training Centres. The aim of the Youth Training Centres is to give school-leavers basic training in a variety of skills, and to instill in the trainee a sense of commitment to the advancement of their communities and nation as a whole.

The Lobatse Youth Training Centre consists of a Builders' Brigade, which provides the trainee with the basic skills in the construction industry. After completing the course successfully, the trainee is eligible to secure employment with Government or a private construction firm in Botswana. It is intended to improve the Builders' Brigade through the purchase of trucks and a variety of equipment such as a cement mixer and brickmaking machine. It is also desired to start a Carpenters' Brigade at Lobatse in late 1970/71, and to enable this Brigade to begin operation the construction of classrooms and housing for students and staff is required.

The Kanye Youth Training Centre also consists of a Builders' Brigade, which is run on the same lines as that at Lobatse. It caters for trainees from the Ngwaketse, Kweneng, Kgalagadi and Ghanzi Districts; it was begun in April, 1969 and require classrooms, housing for students and staff as well as well as vehicles and equipment. It is the intention of the Kanye Youth Training Centre to start a Farmers' Brigade in 1970/71 and a Girls' Training Workshop in 1971/72. These will require classrooms, housing, vehicles and equipment to begin operation in the year scheduled. It is the intention that the Brigades and workshop should aim to be self-sufficient once established.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	33,490	27,100	21,850	9,500	–
Recurrent	–	2,800	3,800	3,900	3,900

CM04 Home Economics

The recent drought focused attention on the need to improve nutritional standards in Botswana and to make better use of food resources. The hardship of recent years has in turn made the population receptive to new ideas regarding better food production, utilization and preservation.

A Home Economics Unit has been formed to organize, train, and actively engage rural women on better methods of food production, utilization, preservation and storage. A number of courses have been successfully held at village, regional and national levels. Approximately 220 women's clubs have now been formed and are being used as a medium of contact with rural people.

It is proposed to strengthen this training programme in two ways: First, to provide a mobile demonstration van, equipped with water tanks and heater, refrigerator, cupboards, sink, and a gas cooker, to assist village training courses. Second, the establishment of a central training area in Gaborone. This will require the purchase of equipment and the construction of classrooms and housing for a supervisor and staff.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
apital	24,500	1,000	1,000	1,000	1,000
ecurrent	–	4,200	4,200	4,200	4,200

M05 "Ipelegeng (Self-Help) Schemes"

elf-Help Project:

This project has been terminated.

M06 Botswana Handicrafts

A number of Handicraft Projects have been established in Botswana; they are located at Mochudi, Molepolole, Francistown (Lokgaba), Lobatse (Tiro ya diatla), Ramotswa, and Swaneng. These organisations are run with the intention of providing their employees with a skill which will enable them to raise their standard of living. These projects are all experiencing similar problems – lack of initial capital and adequate marketing facilities. To alleviate the problem of inadequate marketing facilities Botswanacraft Development Trust was formed. This Trust will be concerned with the establishement of "Botswanacraft" and a Producer's Association. "Botswanacraft" will serve as a central marketing organisation for the craft producers. The Producer's Association will establish the standards of quality which products, purchased by "Botswanacraft", must meet.

The intention of this project is to provide the necessary capital and equipment to four organisations – at Ramotswa, Molepolole, Francistown and Lobatse – to begin the production of handicrafts or expand present facilities to make the organisations viable. Francistown requires an electric kiln, woodworking and office equipment, and a vehicle. Lobatse needs housing for staff, equipment and a vehicle. Molepolole requires equipment, a vehicle, and construction of workshops, office, and renovation to existing buildings. Ramotswa needs housing for supervisor, staff and students, office, workshop extension, equipment and a vehicle. The capital costs are required for reasons mentioned above, and once established these organisations should be capable of earning sufficient revenue to be self-supporting.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	32,545	10,300	3,920	1,600	1,000
Recurrent	–	4,800	5,600	5,700	5,700

Development Planning

DP01 Household Income and Expenditure Survey

The consumer surveys in Francistown and Maun will be completed in October 1970. This is the last of a round of surveys to estimate the income and expenditure patterns of the people in six major centres in the country. It is felt that the information obtained from these surveys will be sufficient for present needs, and no further expenditure will be incurred after 1970/71.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	6,616	–	–	–	–
Recurrent	–	–	–	–	–

DP02 Population Census

It is proposed to hold a population census of Botswana in August/September 1971. This will be planned with the advice of the ECA Regional Adviser in Demographic Statistics. The previous 1964 census, although most valuable, was deficient in two major respects. Firstly, no information was collected on the de facto population of each village. Secondly no information was collected which permitted the determination of population growth. Thus vital data required for planning is not available and it is desirable to hold a new census as soon as possible. The first stage started in April 1970 and will last 12 months. Two teams will draw up maps which will be used to delimit the enumeration areas. The second stage will be the actual count using 12 District Census Officers, 200 supervisors and 1,000 enumerators.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	41,590	61,910	13,500	–	–
Recurrent	–	–	–	–	–

DP03 Government Bond Issue

The Botswana Government proposes to raise development finance by means of a R3,000,000 bond issue. Of this R1,000,000 will be raised on the basis of five year bonds at a 5½% p.a. interest rate, to be subscribed by the commercial banks operating in Botswana. The remaining R2,000,000 will be offered for sale by private placing in the form of 7½% Registered Bonds 1988/1997. The issue will be managed by Messrs. Outwich (S.A.) Limited and Messrs. Union Acceptances Limited jointly. The costs of the issue must be met from the Development Fund, and are estimated at R25,500.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	25,500	–	–	–	–
Recurrent	–	–	–	–	–

EDUCATION

ED01 Mater Spei Secondary School:

Until recently the only secondary school facilities available in Botswana were situated in the south. In response to a clearly defined need to remedy this state of affairs, a secondary school was founded in 1965 in Francistown. The school was established by Roman Catholic missionaries who have been running it with the assistance of subsidies from Government both on recurrent and capital account. From early beginnings as a one stream school the institution has developed so that in 1969 there are 3 forms I 2 forms II, 2 forms III and one each of forms IV and V. In the course of the next 5 years it is envisaged that first the three streams from forms I – III will work their way through the system, and second that in 1973 a fourth form I will be added. In other words from 1969 with a situation of 9 classes and an enrolment of 257 pupils the school will grow to have 13 classes and approximately 390 pupils in 1974. Eventually the school should have four streams to form III and two forms IV and V.

New classrooms, laboratories and staff houses are essential to accommodate this expansion. Increased boarding facilities will be necessary to cope with the demand generated by the fact that while policy is for the proportion of day pupils to be as high as possible, selection is on a national basis so that the numbers of potential day scholars is unusually low. Two additional hostels will need to be built in 1970/71, increasing the availability of boarding places from the present 160 to 320. As the school grows so has the proportion of non-mission to mission staff. These people have to be accommodated. There should, theoretically, be a staff of 18 in 1974 while there are at present only 8 staff houses. Even allowing for mission staff catered for by the mission, it will be necessary to build 4 staff houses in 1970/71, and another 2 in 1972/73.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	98,995	11,000	24,800		
Recurrent	–	8,500	8,700	15,800	20,500

ED02 Swaneng Hill School

Swaneng Hill School, Serowe is situated in one of the most heavily populated parts of Botswana. It is currently the second largest secondary school in the country with a 1969 enrolment of 424 pupils in 14 classes. Natural growth will in the next five years add a further six classes, making a total of 20 and approximate enrolment of 600. As the drop-out rate between forms III and IV is about 50%, half of Swaneng's anticipated four form IV's (from 1972) will have done their first three years at a Junior Secondary School.

This school is unique in so far as real attempts have been made to adapt the curriculum to the needs of what is predominantly a rural economy. Voluntary work is encouraged and the ideal of self-help actively inculcated. The dual aims of these efforts being to foster self reliance amongst the pupils and to keep costs per student as low as is practically possible. With this latter aim in view also the staffing structure of the school has been biased towards accepting a high ratio of volunteers working in conjunction with a core of professional teachers. Academic results seem to indicate that this can be a successful method of imparting education while effecting considerable cost savings.

After years of hard work on the site the school is now well endowed with facilities, well endowed in the sense of there being an adequate number of classrooms, laboratories etc., to cope with a four stream intake to Cambridge School Certificate. Qualititative improvements could be made, for example the provision of equipment to turn an ordinary classroom into a specialist mathematics room. Another major scheme must be the building of a new library to replace the present very small, totally inadequate little room now serving in this capacity.

Government's major commitment in the next years will be on recurrent account. As a quid pro quo for the Principal raising the funds to establish the Mahalapye School, Government will undertake to meet the deficit on recurrent account at Swaneng. This effectively will add an extra R30,000 approximately per annum to Government's grant. Assistance towards general pupil maintenance will also increase as numbers rise.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		11,985			
Recurrent		41,500	52,800	52,800	52,800

ED03 Moeding College:

Moeding College is a co-educational secondary school, built and managed by the London Missionary Society. It is situated 13 miles north of Lobatse, the nearest major population centre, but is close to the main north/south road and rail links. Being somewhat isolated the school is of necessity almost entirely a boarding establishment; currently out of an enrolment of 275 pupils, only 8 attend daily.

At present there are 3 forms I and 2 streams in all other forms up to and including form V. By 1974, there will be four streams to form III and three threafter. In order to accommodate this expansion, additional hostel facilities will have to be provided, phased over a 2 year period, 1970/71, 1971/72. These will raise boarding capacity from the current 320 to 480 places. As well, 4 new classrooms will have to be constructed to house the new classes. These will have to be built in 1971/72 in order to meet the anticipated demand. One or more could be converted into a specialist room with the addition of the requisite equipment.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	88,125	37,635	59,600	–	–
Recurrent		11,800	23,700	35,700	40,400

ED04 St. Joseph's College:

St. Joseph's College was founded in 1948, just off the main north/south lines of communication, five miles south of what was later to become the site of the capital of Botswana, Gaborone. From these early days when the school produced the country's first Junior Certificate holders, the establishment has grown under the able direction of the Roman Catholic Mission Management. During 1967/68 and 1968/69 the school was expanded to allow for the addition of a third stream which in fact entered form I in January, 1968. At present there are 3 forms I and II and 2 forms III, IV and V. In 1972 it is planned to add a fourth form I and a third form IV.

In order to handle the anticipated growth at Khale, new physical plant will have to be constructed. In 1970/71 three new classrooms are all that will be required, one of these should be equipped with specialist equipment to facilitate the efficient teaching of mathematics. Poor teaching of this subject is one of the most worrying features of the educational system in Botswana. Many young Batswana are debarred from taking up professions they would otherwise be qualified for because of a lack of the requisite standard of pass in mathematics. Unless this situation can be improved, not only will an adequate level of numeracy never become firmly established, but as well there will be for a long time a continued shortage of people such as scientists and accountants who depend on this basic skill.

In 1971/72 2 new hostels will have to be built along with 2 new staff houses and a new library. The excellence of the school site makes this school doubly attractive for expansion.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	11,635	61,530	–	–	–
Recurrent	–	12,400	22,300	26,900	26,900

ED05 Kgari Sechele Secondary School:

Kgari Sechele School was founded in 1955 by the Bakwena tribe at Molepolole. Until April, 1967, the school was administered first by the tribal authority and then for a short time by the District Council. In 1967 it was taken over by Government and is now run by the Ministry of Education. In January, 1968, the school moved to new buildings on a new site.

The new buildings made it possible to expand the school's enrolment, doubling the intake from 2 to 4 forms I. In 1969, there are in addition to the 4 streams in form I, 2 in form II and 2 also in form III. Pupils selected for form IV and V further their education at other schools, such as Gaborone and Swaneng. While this truncated pattern will continue for some years it has always been Government's policy that eventually this and the other Junior Schools would be completed with the addition of forms IV and V. The first form IV is planned to be enrolled in 1974.

In order to prepare for the expansion it will be necessary to provide the following facilities:–

1970/71

1 laboratory

4 teachers houses

2 toilet blocks

1 hostel for 80 pupils

1 workshop and store

1 Home Economics block

Equipment for a specialist mathematics room

1973/74

1 hostel for 80 pupils

4 teachers houses

4 classrooms

1 laboratory

These buildings will enable the school to run four streams to form III and two thereafter, a desirable pattern for a medium size establishment.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	115,995	–	–	60,760	–
Recurrent	–	14,200	14,200	26,500	27,100

ED06 Molefi Secondary School:

Molefi Secondary School was built by the Bakgatla tribe at Mochudi in 1951. As with Kgari-Sechele School this school was administered first by the tribe, then by the District Council and from April 1967 by the Ministry of Education.

In 1968/69 the school moved to new buildings on a new site and began expansion from two streams to four streams to form III. It is planned to add facilities for two forms IV in time for the beginning of the 1973 academic year. Thus in 1974 the school will for the first time have the full range of forms I to V, four streams to form III and 2 for form V. This will be the first of the Junior Secondary Schools to have the higher forms. Enrolment will rise from the present 253 to about 420 in 1974 as a result of the proposed expansion.

Preparation for the school's growth over the next few years will occasion the need to build similar new facilities to those planned for Molepolole, though the phasing will of necessity be slightly different. Expansion in 1970/71 will be comparable but a start will have to be made in 1972/73 (instead of 1973/74) on the construction of an additional hostel, teachers houses, classrooms and laboratory.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	97,995	–	60,760	–	–
Recurrent	–	14,200	26,500	39,400	39,400

ED07 Seepapitso Secondary School:

Seepapitso, like Molefi and Kgari Sechele schools, has a tribal origin, being founded in 1950 at Kanye, the tribal capital of the Bangwaketse. Its administrative history is also similar, being now run by the Ministry of Education. Unlike the other two Junior Secondary Schools though, Seepapitso has not moved to a new site. Rather, to accommodate an expansion of the student body, the old buildings were modified and new ones added on the same site which was suitable for this development.

The development plans for Seepapitso are similar to those of Kgari Sechele both in scope and timing. Thus in 1974 the first form IV will be taken on beginning what really amounts to the second major phase of the school's expansion. Considerable economies will be achieved in the overall programme by using standardised designs, economies both in money and time. By 1974 Seepapitso will have 14 classes and an estimated enrolment of 420 an increase of 147 over the present figure. Currently there are four forms I, three forms II and two forms III. 9 classes in all. One more than at either Molefi or Kgari Sechele.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	97,995	–	–	60,760	–
Recurrent	–	6,600	6,600	18,900	19,500

ED08 Francistown Teacher Training College:

The Francistown T.T.C. upgrading programme has now been running for a year. The first intake of students is now about to return to the College for their second residential period of instruction having been following correspondence courses for the past ten months. Thus from now on, there will at any one time be 60 students on this second course, together with another 60 who are just beginning the three year programme. It will not be until the third year that maximum capacity will be reached when a total of 180 students will be in residence at any one time.

In addition to the upgrading programme, Francistown T.T.C. has been selected as the site for the first Advanced Teachers Course. Ten students are at present being trained to a level which will enable them to teach in the junior forms of secondary schools. It is hoped that both the quantity and quality of students taking this course will rise in the subsequent years, and that these people will make a significant contribution to relieving the shortage of teachers in secondary schools.

As the number of students attending the College grows, so too must the number of staff. At present there are five lecturers each of whom is housed on the College campus. In anticipation of an increasing demand for staff housing four houses must be built in 1970/71 and a further two in 1971/72.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		16,180			
Recurrent		9,700	14,600	14,600	14,600

ED09 Lobatse Teacher Training College:

Lobatse Teacher Training College is the oldest of Botswana's three teacher training institutions. It is the only one which offers both the Primary Lower and Primary Higher courses. Policy is to upgrade trained teachers as well as train those without any qualifications and to this end it can be anticipated that over the next five years the Primary Lower course will be gradually phased out. Lobatse T.T.C. will then train teachers for the Primary Higher Certificate. This movement is dependent on the growth in secondary education as the candidates for the more advanced courses have to have at least two years in secondary school as the bare minimum. As numbers increase in the secondary schools, as

numbers of students taking Junior Certificate rise, so the present primary school leaver will be replaced by ex-secondary school pupils as inputs into the T.T.C.

In order to improve the facilities at the College, and make training more effective, new facilities must be provided. A new library needs to be built to replace the existing small room now being used for that purpose. A workshop also must be constructed to allow students to be instructed in the manufacture of teaching aids. In a subsequent year an additional lecture room will be necessary.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	18,000	10,000	–	–	–
Recurrent	–	500	600	600	600

ED10 School Broadcasting:

Project terminated.

ED11 Primary School Equipment:

The base of Botswana's educational system consists of 280 schools with an enrolment of 82,214 children. In view of the urgent necessity of increasing the national output of trained manpower and the restricted funds available to education as a whole, priority has, so far, been given to secondary education. Nevertheless, the nation's primary schools suffer from a shortage of basic equipment, teaching aids and sanitary equipment. (Although all children now receive a free noon meal, 80% of the primary schools lack water and latrines).

The quality of primary education will be improved and, thereby, the quality of the primary school leaver if adequate equipment and facilities are provided. It makes little educational or financial sense to invest relatively large sums in the upper sections of the educational system without first improving the facilities at the primary level. The return on the investment at the upper levels will be higher if the quality of the primary school graduate is improved. What is required are more desks, tables and chairs for teachers, storage cabinets, blackboards and instruments, simple globes and scales.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	30,000	30,000	30,000	30,000	30,000
Recurrent	–	–	–	–	–

ED12 Secondary School Bursaries:

This project has been transferred to the Ordinary Budget.

ED13 Higher Education Bursaries:

This project has been transferred to the Ordinary Budget.

ED14 Educational Testing:

Financial provision for testing has been made on the Ordinary Budget as a subvention to the Regional Testing Centre Project shared with the Governments of Malawi, Lesotho and Swaziland.

ED15 Correspondence College:

Shortage of facilities at the secondary school level has meant that out of the roughly 5,000 primary school leavers each year, only just over 1,000 continue their education formally. Not all of those who fail to get places qualified to carry on, but there is a substantial number that are. Many of this group have no inclination to further their education, but again a lot have. Even allowing for all possible forms of wastage, there is still an annual residue of young people with the necessary qualifications who are frustrated in their desires to receive education at a higher level. The existence of this growing pool represents a potential reservoir of trainable people able to fill many positions at the middle levels, given that opportunities to train are made available. Evidence of the availability of qualified students and of the ever evident demand for secondary education is provided by the rapid growth of self-help evening classes. These well-meaning institutions often provide only second rate instruction in unsuitable surroundings. A correspondence college could well provide material for such schools as indeed similar colleges elsewhere do, for example in Malawi.

Recognising the need for some kind of correspondence operation in Botswana not only for the reasons set out above, but also because the very size of the country makes this a priori an attractive way of spreading education to all corners of the territory, the Government has been actively studying the possibilities for organising a Correspondence College. Decisions as to its scope, size, situation and method of organisation still have to be taken. However, it is probably right to say that the start would be at Junior Certificate level with an enrolment limited to initially about 1,000 students. Careful control of enrolment, in step with the administrative and organisational capabilities of the College, staff and equipment is a prerequisite for efficient operation. Once the College was soundly established, enrolments can increase and further courses added.

Due to the need to draw on a pool of qualified markers and tutors, the best location for the proposed institution would probably be in Gaborone. New buildings will almost certainly have to be constructed as there is no suitable accommodation available. In addition to office space, assignment production has to be catered for in all its stages from printing to despatch. Room is also necessary for records and storage of lessons and materials. The biggest items of equipment that are needed are of course printing presses and plate production machines.

In relation to the numbers of pupils the staff needed to handle the College will be small, this is one of the most obvious advantages of this method of education. Good ancillary staff are an integral part of the machine, particularly vital are a good printer and a good executive officer. Other recurrent expenses are mostly on materials, postage and transport.

Until definite decisions have been taken on the character and scope of this operation any estimates of the financial provision that will be necessary can only be at best rough indicators of the likely magniture that will be involved. Similarly, phasing will depend on the potential enrolment and its rate of growth, a critical parameter. However, the following figures seem reasonable:–

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	50,000	20,000	10,000	10,000
Recurrent	–	20,000	35,000	50,000	65,000

Offsetting the expenses incurred by the College will be fees received from students. The exact sums received, will of course depend on the growth of enrolment, but if fees for a Junior Certificate course were set at say R20 (a similar fee to that charged by the Zambian Correspondence Unit), then with an annual student enrolment of 1,000, there would be a revenue generated of R20,000. This in the early years may well cover most of the recurrent costs of the unit.

ED16 Shashi River School:

Shashi River School was founded as a result of joint initiatives on the part of Mr. P. van Rensburg, Principal and founder of Swaneng Hill School, Serowe, and of the Botswana Government and admitted its first pupils at Tonota in January 1969, three forms I having already spent a year at Serowe. There are now four forms I and 3 forms III, a total enrolment of 210 pupils. By 1974/75 the school should have developed to having four streams to form III and two streams to form V, approximately 480 pupils. These though are only one half of the total student body of the institution. Shashi River School has been planned on the Swaneng model, a conglomerate mix of academic and vocationally orientated instructional courses. Thus in addition to the pupils mentioned above who are following predominantly academic courses, there will be an additional 360 students following courses in which emphasis is on specific training, in for example, building, farming, carpentry and mechanical trades for the boys, textiles and weaving for the girls. All pupils, regardless of their major subjects do some practical work, while all students being "vocationally orientated" receive some academic instruction.

Building operations at the site in Tonota, 25 miles from Francistown have been underway since August 1968, and as yet the school is far from being complete.

The following buildings will ultimately be required:–

20 classrooms, including special rooms
4 laboratories
1 Home Economics block
1 library
1 hall
9 hostels
23 staff quarters
4 toilet blocks
2 woodwork rooms
2 metal work rooms
1 room for Building Science
1 room for Technical Drawing
1 administrative block
1 sick bay
1 staff room

These buildings will be phased over a six year period beginning in 1968/69.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	102,404	91,245	52,305	12,513	–
Recurrent	–	24,400	32,900	44,900	44,900

ED17 Lobatse Secondary School:

Lobatse is one of the last major centres without any secondary school facilities. Government's policy is to site new schools in areas of greatest concentration of population to enable the proportion of day pupils to be maximised, thus reducing the necessity to provide expensive boarding accommodation. Apart from adequate reasons on this score the

development of a secondary school in Lobatse has been made more attractive on two other counts. Firstly a donation of funds to build a Junior Secondary School; secondly the opportunity of taking over and developing a site currently used by a small primary school. The primary school is to amalgamate with another similar institution thus releasing extensive grounds and buildings for conversion to secondary school use.

The intention is to create initially a two stream Junior Secondary School with a technical bias to its curriculum. From January 1974 onwards the intake will be doubled to four streams. To accommodate this enrolment rennovations and alterations will have to be made to the existing buildings, in particular the small primary size classrooms will have to be modified to take more and bigger children. Staff accommodation will also have to be built plus a laboratory, library, administrative block and toilet blocks. Boarding facilities at this site are already available as part of the primary school. All that the Town Council, under whose jurisdiction the primary school lies, has asked for in return for surrendering the school and site, is that an extra four classrooms be built at the other primary school to cater for the amalgamated, enlarged unit.

Expenditure will be phased as follows:–

	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	62,500	57,650	53,150	–	–
Recurrent	–	24,400	36,000	36,000	48,500

ED18 Primary School Improvement:

The aim of this project is simply to provide basic sanitary facilities for primary school children. As long as the only available latrine is a convenient spot in the bush it is impossible to meaningfully teach even elementary hygiene. The task of persuading people in general to build latrines, and hence the job of raising public health standards, will be made much easier when they can be provided in schools. The demonstration effects are expected to be considerable. It is therefore intended to initiate a programme of latrine building affecting as many schools as is possible.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	51,200	43,200	43,200	43,200	43,200
Recurrent	–	–	–	–	–

ED19 Gaborone Secondary School:

Gaborone Secondary School is the biggest secondary level institution in Botswana, with an enrolment of 475 pupils. There are at present four forms I and II, and three forms III, IV and V. The intention is to reap the maximum economies of scale by expanding it to four streams to form V. As the drop-out between form III and IV is roughly 50%, this means that there will be room in form IV for the equivalent of two streams drawn from the Junior Secondary Schools, about 60 students. Full four stream operations will commence in January 1971. Thereafter it is conceivable that a fifth stream could be added say in 1973, though this is as yet undecided and must await a more detailed analysis of the implications for secondary education of high level manpower projections.

In order to cope with the immediate needs of the school's growing enrolment, capital works are required. In 1970/71 three new classrooms must be built and as well specialist teaching facilities provided. Provision of staff housing needs to be further increased as does the provision of boarding accommodation for students. The present boarding capacity is about 380, and two new hostels adding a further 160 places will be required. In 1971/72 a new laboratory will have to be built as the three existing ones are used very fully, thus not allowing any time for experiments to be properly prepared or for adequate maintenance of equipment. Gaborone Secondary School has been fortunate enough to have a domestic science teacher on the staff to utilise the facilities provided to teach this important subject to the girls. However, the equipment and facilities that exist at present are not adequate and need to be replaced in some measure and also added to. Further developments will depend on whether or not more streams are added in the future.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	63,237	12,485	–	–	–
Recurrent	–	6,400	6,600	6,600	6,600

ED20 Provision of Library Books Secondary Schools and Teacher Training College:

No matter how good classroom instruction may be a student can only develop his full potential by learning and discovering for himself and one of the best ways of doing this is by reading books. Books in school or college libraries can also provide a wide variety of materials for use in support of classroom and project activities.

The National Library Service Board is most anxious to see school and training college libraries develop rapidly and has recommended that in future top priority should be given to the improvement of libraries in teacher training colleges. Proposals for the building up of the T.T.C.'s and Botswana Training Centre Libraries provide for

the growth of each institutions stock, from a minimum of 1,000 useful volumes in 1969 to a minimum of 5,000 such volumes in 1974/75. For the secondary schools the proposal is for bookstocks to be increased to a minimum of 2,500 volumes in 1974/75. The existing collections of books in all schools and colleges are small and contain a considerable amount of material which needs to be thoroughly weeded out.

Calculations of the recurrent costs involved take account of the expected continuation of the rising trend in book prices as well as the replacement of worn and damaged volumes.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	26,500	26,000	27,000	30,000	33,000
Recurrent	–	13,700	22,900	37,600	53,500

ED21 and 23 Home Economics – Lobatse T.T.C:

In recent years the content of the Primary School syllabus has been under review, the intention being to bring it more into line with the realities of Botswana and to relate it to the needs of an essentially rural environment. It is felt that in the lower primary classes the syllabus should provide a sound education linked to the needs of the local community and environment. In the higher classes pupils should be introduced more systematically to practical experiences connected with running households, farms and rural workshops.

The teaching of elementary science with an agricultural bias has already been introduced in the primary schools in 1969, and secondary schools are being urged to pay more attention to the teaching of science subjects. However, little or no progress has been made so far with the teaching of domestic science or home economics. The reason for this has been mainly the lack of teaching staff and facilities. In order to rectify the situation it is intended to build a Home Economics Block consisting of a needlework room, a cookery and laundry room, with storerooms, and a demonstration flat at Lobatse T.T.C.

The equipment will be of the less sophisticated type, such as future teachers are likely to encounter in their careers. Thus for needlework, electric treadle and hand sewing machines will be used. The majority of the stoves in the cookery room will be wood burning, but there will also be at least one each using gas and electricity. The demonstration flat will be properly furnished and equipped so that students can live there for a given period of time. With facilities such as these in addition to needlework and cookery mothercraft, laundry, and housewifery can be taught, thus preparing the student for most eventualities.

This would appear to be an ideal set up, and would be so, if adequate power facilities were available. At the moment, the college possesses a small generator which provides dim lighting in the dining hall and half of each hostel. Lighting in all the other rooms and the staff houses is by paraffin lamps, although mains electricity is provided in the town. Thus little study can be done at night, and full use of all teaching space cannot be made, neither could the new home economics block be properly used. It is planned to resolve this problem by connecting the college to the mains supply, this would necessitate extra wiring and fitting as well:

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	37,000				
Recurrent	6,200	12,400	12,400	12,400	12,400

ED22 Moeng College:

Moeng College was founded by the late Tshekedi Khama, some 40 miles east of the North/South railway line, in a valley in the Tswapong Hills. The school opened in 1949 and now has an enrolment of 254 pupils, all boarders. There are three forms I, two forms II and III, and one each of form IV and V. The school suffers from its rather isolated situation, which is the prime reason for the high costs per pupil. In particular all building materials have to be carried by indifferent roads to the school site and this per se raises the costs of construction. Because of the basically sub-optimal nature of the operation it has been decided not to expand the school beyond its natural growth, that is with three streams to Junior Certificate, one to O level.

However, even though no major expansion is envisaged, certain facilities must be added if the school is to operate anything like efficiently. Authoritative statements have been made that the school will not be closed so in 1970/71 three new classrooms and a laboratory must be constructed. In 1971/72 three new staff houses will be necessary.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	50,850	26,697			
Recurrent		5,000	5,600	5,600	5,600

ED24 Maun Secondary School:

The Government's policy towards secondary education expansion has been firstly to expand existing institutions, second to seek to establish new schools in areas of maximum need and maximum economic viability. These two have resulted in the bulk of institutions having been built near the line

of rail, in fact no school is further than 45 miles from this vital communication axis. This area too is the most heavily peopled part of Botswana, a prime consideration in school siting.

The general arguments in the past against the opening of a school in Maun have simply been that it has been more economic to expand and develop institutions in the east, secondly that the numbers of pupils completing primary school in the catchment area were inadequate to fill even one form I, thirdly the isolation of the area would make costs high and staffing difficult. Now the position is rather altered. First the development of existing schools to a viable size is well under way, natural growth left to complete the process. Secondly, numbers of pupils completing the primary school course in this part of the country have risen substantially so that an adequate field of selection exists for at least a two form school. Thirdly, Maun is no longer isolated since the completion of the all weather road to Francistown and the institution of regular air flights.

In these circumstances, Government has decided to encourage the establishment of a secondary school in Maun, and has given the go-ahead to the United Methodist Church to found such a school. It is hoped that an initial two forms I will begin in January 1970, with an additional two being added in 1971, thereafter four streams a year will be the normal enrolment. Until the school has been established on a four stream to form III basis it will not have a sufficiently large enrolment to justify an economic form IV and V operation with two streams. The school, it is anticipated, will offer its students a diversified curriculum, with an emphasis on agriculture. This will be achieved partly by close cooperation with the North West District Youth Project.

In 1974/75, the enrolment should have reached about 360 pupils in 12 classes. In order to accommodate these people the following buildings will be necessary:-

13 classrooms including specialist rooms
2 laboratories
1 Home Economics room
6 hostels
1 dining hall plus kitchen
administrative block and library
1 workshop and store
16 staff houses
4 toilet block
Matrons' flats
Boarding Masters' flats

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	103,000	68,480	80,707	64,731	14,114
Recurrent		24,500	46,400	59,300	71,900

ED25 Mahalapye Secondary School:

The secondary school which it is proposed to establish at Mahalapye will be the second joint venture between Mr. P. van Rensburg and the Government of Botswana. Shashi River School being the first. Like Shashi, the Mahalapye institution will admit a mixture of students some to follow an academically orientated path, others to develop in accordance with other aptitudes that they display. In its final form, the school will probably consist of a secondary school with 540 pupils, a Farmers' Brigade with 90 trainees, a Builders' Brigade with 90 trainees, a Mechanical Brigade of 45 trainees, a Carpenters Brigade also with 45 trainees, a Tanners Brigade with 30 and perhaps a Plumbers Brigade with 30. For the girls there will be a textile workshop with 60 trainees.

It is hoped to open in 1970 with two forms I. Thereafter the form I intake will consist of four streams. Mahalapye was chosen as the site for this institution on the grounds of its position as a large population centre and because of the ease of communication with the rest of the country. It is hoped that the first factor will be the most telling and that the proportion of day pupils will be high.

The following buildings will ultimately be required:-

14 classrooms
1 Geography room
4 Science Laboratories
1 art room
1 Agricultural Science Laboratory
2 Woodwork rooms
2 Metalwork rooms
1 Room for Technical Drawing
1 Room for Building Science
1 Typing Room
Farm Buildings
1 Tannery
1 School Hall and Kitchen
1 Administrative Block and Library
7 Hostels
4 Student Common Rooms
Flats for Boarding Masters and for Matrons
Quarters for 30 unmarried staff
22 Houses for Married staff
2 Hostels for Brigade Students
Staff Room and Kitchen and Temporary Students Kitchen.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	148,510	79,090	90,750	57,200	22,220
Recurrent	–	26,100	36,500	44,100	56,100

The recurrent costs for the first five years will be borne by the sponsors, thereafter they will be paid by Government. Government will also undertake to cover the deficit on recurrent costs for Swaneng Hill School.

ED26 Totome School:

This project is currently the subject of negotiation between Government and the sponsors. Cabinet has approved the establishment of a secondary education institution in the densely populated Bokalaka area, but its exact nature is still to be decided.

The sponsors believe in the necessity of having a curriculum which is relevant to the country's needs, and also that the students should become involved in community development work in the area. The project aims to encourage the ideas of self-help, mutual aid and cooperation among the students. To this end they will be asked to voluntarily contribute their services to help the construction of the school as well as to participate in helping solve the problems of local development.

In order to reduce the unit costs of education the sponsors have proposed that the scheme be run on a shift basis. This would enable the maximum use to be made of expensive physical facilities as well as enable enrolment to be further increased. This proposal is currently being studied by the Ministry of Education.

The school will be constructed over a six year period beginning in 1970. Initially it is proposed there should be a form I intake of 111 students split into 3 forms. Development thereafter is dependent on what decisions are made on the adoption of the shift principle.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	130,000	110,000	112,000	82,020	68,350
Recurrent	9,000	18,200	42,000	63,600	80,100

ED27 Agricultural Instruction:

For many years to come Botswana will depend very much on Agriculture as the major source of employment. At present 80% of the working population are engaged in Agriculture. Livestock and livestock products account for approximately 90% of exports. Most Batswana depend for their food requirements on the cultivation on a subsistence basis of crops such as sorghum, maize, millet, cowpeas and beans. As most of the primary school leavers will find employment on the land, Agriculture has been recently included in the curriculum of the upper classes of the primary school.

Most primary school teachers are not well equipped to teach this vital subject effectively due to ignorance of it, lack of facilities and equipment. There is therefore an urgent need for short courses of about a fortnight at a time in Agriculture to assist teachers in interpreting the syllabus. Teachers will have to be brought in batches of about 60 at a time to Rural Training Centres for these Courses.

This will require money to cover travelling expenses to and from the Centres and the cost of maintenance of teachers at the Centres. In addition Capital will be required to provide for facilities and equipment in the schools. It is estimated that approximately 180 schools will be engaged in the teaching of Agriculture. It is intended to start a pilot scheme using 30 schools initially for experimental purposes while at the same time running courses for at least half the teachers of agriculture. Thereafter other schools will be brought into the scheme at the rate of 30 a year.

The following table shows Capital and recurrent expenditure which will be required for this project:

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	12,000	12,000	12,000		
Recurrent		7,300	11,500	11,500	11,500

ED28 Serowe Teacher Training College:

Serowe T.T.C. has currently the largest student population of any of the Colleges, 169, all doing the Primary Lower Course. In general, facilities are adequate for this and indeed for a slightly larger number. However, as in the Lobatse case, two vitally needed specialist rooms are inadequately provided for or are missing entirely. The present library is small and totally unsuitable as a place of study. Given the need not only to teach students to teach, but also to provide upgrading of basic educational standards, proper library facilities are a basic essential. Similarly students need to be able to practice making teaching aids and simple pieces of equipment which will give a boost to their own performances when they eventually return to their schools. To this end a workshop and equipment needs to be provided.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	18,000				
Recurrent		500	500	500	500

ED29 Vocational Training Centre

The country is at present, and will be even more so in the near future, faced with an acute shortage of trained and skilled artisans in all trades. The

absence of the necessary number of craftsmen would be a critical bottleneck in the rapid development of the economy. Given that this cannot be tolerated, if local competent men are not available recourse will have to be had to importation of labour. In order to avoid the latter the Botswana Government is seeking U.N.D.P. (SF) assistance to establish a vocational training programme.

The project has two aspects. Firstly in order to provide the pilot centre to be established under the scheme with locally trained instructors an upgrading training course will be arranged in Botswana followed by the selection from each trade group of two instructor trainees who will receive additional training. Secondly, and running concurrently with the instructor training course, a new vocational training centre will be constructed in the Francistown area. It is intended to concentrate on those trades for which a demand is known to exist and to provide accelerated training courses. The sections envisaged are as follows: motor mechanics, welding and pipe fitting, electrical trades, fitting and turning, plumbing and sheet metal work, carpentry, building trades. Each course will last from 3 to 12 months depending on the trade and on the level of skill industry requires.

Expert instructors will be provided by U.N.D.P. (SF)/I.L.O. for each trade. In addition to their training role the experts will assist in the establishment of a coordinated training programme for Botswana, set up a Division of Vocational Training within Government and in all ways help to identify and solve the country's training problems. U.N.D.P. (SF) will also provide the necessary equipment. Government's counterpart contribution will chiefly be the construction of the new centre. Assistance will be sought on a bilateral basis for funds to meet the necessary costs.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	89,250	227,766	3,570		
Recurrent		15,000	25,000	30,000	30,000

LS02 Development of the Botswana Training Centre/University Centre:

As the economy of Botswana gathers momentum and eventually takes off there in an associated equally rapidly expanding demand for manpower trained at the post secondary level. Training is needed not only at a higher academic level, but there exists a whole range of other needs as well, for example technician, management, commercial and administrative courses. Though a wide range of skills is necessary the numbers likely to be involved, at least in the initial years, are likely to be small. Considerable economies can therefore be achieved if training can be concentrated in one institution, economies of facilities and in many cases of staff as well.

The recent reports by Sir Norman Alexander on the University of Botswana, Lesotho and Swaziland, and by the Pickard Mission on Further Education in Botswana, both pointed out forcefully that post O Level academic work should not be undertaken in schools but rather should be concentrated in one centre responsible not only for academic instruction but for other branches of further education as well. Discussion on the future development of U.B.L.S. has recommended that post O Level academic work, both degree and diploma, should be devolved onto the individual countries. This means that in Botswana there will be a need to provide facilities for a group of people following either A level or U.B.L.S. Part I or U.B.L.S. diploma courses under the auspices of the University.

Together with the development of a local University presence there is also a need to provide training facilities for post O level technical courses for either technicians in training or for students being prepared for entry to technical institutes outside Botswana. Here again if these can be provided in the same centre as the post secondary academic training economies may be achieved for example in the use of classroom and laboratory facilities.

A Further Education Centre as envisaged by Pickard would also encompass the whole gambit of management, business studies and secretarial courses at elementary intermediate and advanced levels. Public service administrative, executive and clerical courses for both new entrants and serving officers in the Central and Local Government services could also be provided. The College would also serve as a national vocational and academic testing centre housing the Botswana branch of the Regional Testing Project in which this country is collaborating with Lesotho, Swaziland and Malawi; with its lecture, and classroom facilities and hostel accommodation the College would also be in a position to function as a conference and seminar centre during vacations.

It is envisaged that the College will be established by the Botswana Government in association with U.B.L.S. and that it will operate under whatever administrative arrangements are devised for the control of further education in Botswana. The College will be formed initially from the existing Botswana Training Centre complex and the University Short Course Centre which is at present under construction. The expenditure figures below

are those thought necessary to develop existing facilities into a full College of Further Education with a residential capacity of 350 and a maximum enrolment of 500 residential and non-residential students. It is emphasised that this project will require to be elaborated in details and integrated into the development of the University as a whole over the next twelve months.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	4,700	549,220	332,020	–	–
Recurrent	–	148,900	262,300	268,200	274,000

Geological Survey

GS01 Mineral Exploration:

Partly as a result of the Department of Geological Survey's work in geological mapping and assessment of mineral and groundwater resources, interest was aroused in Botswana's mineral potential which encouraged mining companies to carry out exploration work. The stage now reached is one where diamond and copper/nickel mining can be expected to develop over the next four years, and this will in turn entail extra responsibilities for the administration of this sector of the economy. The Department's commitments include regulation of mining and mineral exploration programmes by the Mining Commissioner, and inspection to ensure safe mining practices and control of explosives under the Government Mining Engineer's Division.

A gradual increase in the staff of the Department is necessary to ensure that officers are available to cope with their increasing duties. The planned expansion of the Establishment includes both pure Geological Staff and staff for the Government Mining Engineer's Division, who have to be supported by cartographic and secretarial staff. Transport, housing and office accommodation, camping equipment and necessary scientific instruments will also be required.

The growth of a mining sector in Botswana will give much impetus to related economic activities and will place the country in a position of budgetary independence within the next five years. Since the Department's commitments will increase not only in the administrative field, but also in continuing normal survey activities designed to promote further development of the country's natural resources, an expanded establishment is essential to ensure the Department keeps apace with new development.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	48,000	28,150	10,250	3,800	100
Recurrent		64,600	90,600	109,200	105,000

GS02 Underground Water Development:

The drilling staff available to Government for underground water development work in the country has not been increased since 1946. With the expansion of the general development programme in Botswana, and in view of the fact that so large a proportion of the population is dependent on underground water supplies, Government now wishes to expand staff and equipment available for this aspect of the Geological Survey Department's activities.

It is planned to increase the drilling staff by the acquisition of two drilling rigs and the necessary staff to operate them in 1970/71, followed by a further three rigs and staff in 1971/72. The programme also provides for the necessary transport, camping equipment and radio communications equipment which will be phased in as the staff increase in number. Standard cable tool rigs are to be used, but in addition it has been decided that two special air drill attachments should be purchased to allow two rigs to be able to utilise this high speed drilling method. The attachments are such that the rigs can be used either as air drills or, with difficult drilling conditions, be converted back to standard cable tool rigs.

Efficient operation in both agriculture and industry, and the country's entire growth prospects, are dependent on a freely available supply of underground water. It is therefore vitally important that the Department of Geological survey be in a position to cope with the rising demand for water consequent to expansion in both sectors.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	82,880	116,320	–	18,000	27,000
Recurrent		45,000	45,500	45,900	46,400

GS03 Underground Water Research Project:

Approximately 80% of the surface area of Botswana is covered by an absorbent mantle of Kalahari Sands, and with the consequent lack of perennial springs and rivers, opportunities for surface water conservation in this area do not exist. At least 80% of Botswana's human and cattle populations are dependent on underground water supplies, including not only the rural population but also every single major town and village in Botswana with the exception of Gaborone. Rapid population growth and rising standards of living and hygiene have already led to indiscriminate exploitation of groundwater resources, and the prospect of marked increase in demand from potential industrial and mining sectors makes research into the available groundwater resources essential.

The main aim of the Underground Water Research Project would be immediate commencement of a groundwater resources inventory together with research into related problems such as the use of new or improved techniques for the detection of groundwater and storage data, improved interpretational procedures, laboratory and field tests to determine porosity and permeability and coefficients of storage and trans-missibility, and rates of

infiltration. The water resources inventory would involve the metering of boreholes, the drilling of observation boreholes, the regular measurement of water levels in relation to abstraction and rainfall figures, detailed logging of the boreholes, systematic tritium, carbon 14 and chemical analyses of water to determine its age and quality and hence whether the water is fossil, and also to determine groundwater flow rates.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	46,932	1,000	1,000	10,700	1,000
Recurrent	–	4,100	12,400	12,400	12,400

Home Affairs

HA01 Bushmen Training and Settlement:

Transferred to Ministry of Local Government and Lands (see project LG04).

HA02 National Museum:

The National Museum and Art Gallery Board established in 1966 has so far raised R50,000 from which six display galleries, stores, offices and extensive garden have been constructed. It is now proposed to seek additional funds for the creation of permanent displays at the rate of one gallery per year at an annual cost of R5,000. The Board also hopes to raise R32,000 for an art gallery with humidified airconditioning. This project has been tentatively phased for 1972/73 but would be implemented earlier if funds became available. In addition to the above, R12,000 is required in 1970/71 for the completion of the galleries started in 1969/70.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	12,000	5,000	37,000	5,000	5,000
New Recurrent				500	500

HA03 Prison Workshops:

Project terminated.

HA04 Prison Welfare Officers:

Project terminated.

HA05 Law and Order:

This project is now numbered PD01 and comes under the Police Department.

HA06 National Library Service:

The National Library in Gaborone has now been established and is providing a public library service to the capital and a postal service to readers in other areas. The aim of this project is to extend a proper public library service to other towns and villages. Branch libraries already exist at Serowe, Mochudi, Lobatse and Kanye. Funds will be sought to improve their buildings and furniture and to increase their book stock. It is also hoped that funds will be available during the Plan period to establish and equip Branch libraries at the following places:–

Mahalapye
Molepolole
Francistown
Maun
Palapye
Orapa
Selebi/Pikwe

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	36,680	74,000	72,723	87,000	87,000
Recurrent	–	10,600	18,500	31,600	47,400

HA07 Improvements to Existing Prisons

It is proposed to carry out much needed improvements to existing prisons. It will be noted that project HA04 Prison Welfare Officers has been terminated because it is considered that the developments outlined below are much more urgent and should receive higher priority.

It is proposed to establish a Young Prisoners' Wing in Gaborone to house some forty young offenders and to give them constructive tuition and training during their imprisonment. The required buildings can be constructed with the help of prison labour. Extra staff required will be one Assistant Superintendent, one Sergeant Warder, ten Warders, and two Technical Officers.

It is proposed to install water-borne sewerage at all prisons to replace the present insanitary system of open latrines and pails in the middle of prison cells. Electric lighting is necessary at Lobatse Prison and the female section of Gaborone Prison, for both security and health reasons.

The existing Maun prison, which can accomodate only 15 prisoners is in a bad state of disrepair and must be replaced. During 1967 the average prison population at Maun was 17.5 which is much higher than the maximum capacity of the existing prison. As a result prisoners serving long term sentences have had to be transferred to distant prisons such as Gaborone; thus prisoners suffer penalties not intended by the courts, such as separation from their families and homes by complete loss of contact. Furthermore the Maun prison serves the whole of Ngamiland which has a combined population of more than 25,000. It is therefore desirous that a proper prison should be built at Maun. Initially, staff required for Maun will be seconded from Headquarters.

	R	R	R	R	R
	1970/71	1971/72	1972/73	1973/74	1974/75
Capital	21,916	2,000	2,000	2,000	2,000
Recurrent	–	–	–	–	27,400

HA08 First Offenders Farm:

It is very desirable not only to alleviate overcrowding in prisons but also to ensure that young offenders and other unsophisticated law breakers do not come into contact with hardened criminals. The best means of achieving this will be by the establishment of a Young Prisoners' Wing as described under HA07 and prison camps or farms for first offenders. Experience gained elsewhere indicates that the cost of running such camps would be

about half of providing conventional facilities. Recurrent costs would also be lower. The camps will be sited adjacent to Agricultural Department farms or areas where crops can be grown for sale. The initial costs will be for portable huts, fencing materials and additional staff.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	8,588	4,000	4,000	4,000	
Recurrent	–	5,400	5,700	6,000	6,400

Information & Broadcasting

IN01 Film Unit:

Project completed.

IN02 Broadcasting House

Project completed.

IN03 Lobatse Transmitter

Project cancelled.

IN04 Expansion of Broadcasting Services

With approximately only one third of the population literate, radio is the only practical medium of mass communication. There is already considerable evidence that Radio Botswana programmes have been instrumental in mobilising people towards self-help efforts and creating a sense of national identity. To ensure that Radio Botswana has the strongest and most perfect reception throughout Botswana, it will be necessary either to install medium wave transmitters at t main population centres or to install a much mo powerful transmitter at Sebele. Preliminary i vestigations have indicated that the medium wa transmitter scheme will have a high recurre expenditure and expert advice is being sought an alternative scheme.

With increased broadcasting time it is anticipat that the demand for more studio space will increas Provision is included below for the cost of a ne 100 Kw short wave transmitter to be installed 1971/72 and for additional studio space to constructed in the following year.

	1970/71	1971/72	1972/73	1973/74	1974/
Capital	–	185,000	56,000	–	–
Recurrent	–	500	3,700	3,700	4,8

Interdepartmental Projects

ID01 Shashi Complex:

To enable the development of mining at Selebi-Pikwe Government proposes to construct. various infrastructure facilities as described in detail in Chapter 9. The design work is being undertaken by the consultants Sir Alexander Gibb and Partners and construction will take place during the first three years of the Plan. This will include a 45 MW thermal power station at Selebi-Pikwe with transmission lines to Francistown and Shashe Siding, a dam near Tonota with a pipeline to Selebi-Pikwe, a serviced mining township at Selebi-Pikwe, a gravel road and a rail spur from Seruli to Selebi-Pikwe, and a hospital at Francistown.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	1,940,000	8,350,000	15,000,000	10,250,000	–
Recurrent		78,000	108,000	282,000	308,000

ID02 Surveys and Training:

This project entitled "Surveys and Training for the Development of Water Resources and Agricultural Production," was approved by the Governing Council of the United Nations Development Programme (Special Fund) in January 1967 and following the signing of the Plan of Operation was begun in April of 1968. The project will take four years to complete and will cost an estimated total of R1,745,100 of which the U.N.D.P. share is R730,100 and the Government share R1,015,000. Major contributions either in cash or in kind, towards the Government share are being made by the British, Swedish and Danish Governments.

The purposes of the project are to establish a national hydrological service and a basic hydrometeorological network, to further the adoption of irrigation, and to identify potentially viable irrigation development schemes. Additionally the project will undertake intensive soil, hydrological agro-economic and socio-economic studies in selected areas of the Eastern Region and formulate guidelines for agricultural development in the region. The project area includes three regions: the Eastern Region comprising the Limpopo tributaries and the streams draining into the Makgadikgadi Pan, the Okavango Region and the Chobe Region.

The project has now been underway for two years and much has already been accomplished. The establishment of the hydrological service is nearing completion and the training of personnel is proceeding apace. A number of pilot demonstration irrigation plots have been selected and are about to be developed. Detailed investigations are proceeding in conjunction with the Ministry of Agriculture on a larger irrigation scheme in the north at Kasane. Some 205 miles of route levelling has been accomplished and permanent marks built. Most of the detailed soils and water work in the main study catchment has been completed and socio-economic investigations are being intensified. A number of specialist reports have been commissioned and studied. Major investigational efforts concerning the Okavango are being made and preliminary ideas for the utilisation and development of this water resource are emerging. The project is currently scheduled to end in mid 1972.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	180,584	131,250	13,250	–	–
Recurrent	–	–	30,000	60,000	70,000

ID03 Botswana Development Corporation Limited

During 1968/69, the British Government financed a technical assistance consultancy study which investigated the need for, and feasibility of establishing a Botswana Development Corporation. Government has accepted the Report's main recommendation that a Development Corporation should be established separate from, but working in close co-ordination with the National Development Bank, and measures have already been taken towards its establishment.

A General Manager, financed initially by Ford Foundation, has been recruited. Work in the first year of operations will be mainly concerned with recruiting further staff, preliminary surveys to establish priorities in the field of industrial and agricultural development and designing and constructing office accommodation. It is anticipated that detailed feasibility studies of possible new enterprises will be completed in time to co-ordinate with the growth of the mining sector. projects will be considered in the fields of industry tourision, commerce and agriculture.

It is intended that the Corporation should be self-sufficient, earning a surplus for re-investment in the shortest possible time. The Corporation will own its office building, which will be constructed in the centre of Gaborone and be large enough to accomodate several Government and non-Government organisations, and at a later stage, the BDC's own associates and subsidiary enterprises. Recurrent costs have been capitalised for the first 3 years of the Plan; these costs, and funds for investment will be regarded as an contribution towards the equity of the BDC.

	1970/71	1971/72	1972/73	9173/74	1974/75
	R	R	R	R	R
Capital	341,350	203,120	73,120	–	–
Recurrent	–	–	–	–	–

ID04 Customs and Immigration Control

It is the intention of Government to establish a Customs and Excise Department. Botswana is a member of the South African Customs Union and as such is required to enact and administer laws in respect of customs, excise, and sales duties. The revision of the 1970 Customs Agreement also, makes it imperative that a Customs and Excise Department be created. (See Customs and Immigration Control, Chapter X.)

It will be necessary to improve or create facilities and to man control points at 22 different places in Botswana. These are divided as follows: border posts; designated rail ports of entry; designated airfields. Eleven border posts will be established at key entry points through which pass the main volume of road traffic in and out of Botswana. Vakaranga will serve both as a border post and rail entry point. It will be necessary to designate eight railway stations as rail ports of entry for customs and excise purposes. All aircraft must land at one of eight airfields in Botswana. Francistown, Gaborone, Maun and Selebi-Pikwe will be designated airfields for customs and excis purposes.

Of the eleven border posts at which additiona facilities will be required, three – Bray, Stockpoor Paris Halt and Vakaranga – will be entirely ne posts. At the remaining eight border posts, Polic control already exists but additional housing and/c office accommodation are required. It is propose to construct bonded warehouses at the two large rail entry points, Francistown and Gaborone, which local importers will be able to consign goo imported from outside the Customs Union. Pr vision has been made for water supplies to b developed at posts where needed. Because the sta will have to work nights at Pitsane and Vakarang where it will be necessary to stop trains, the cost lighting facilities has been included. At 4 statio a vehicle will be required to enable goods an personnel to be conveyed to main centres. Gener provision has been made for road realignment packing bays, security fencing, signboards, shelter border gates where necessary.

Provision has already been made in the Ordinar Budget Estimates, 1970/71, for the additional sta required to man border posts.

	1970/71	1971/72	1972/73	1973/74	1974/7
	R	R	R	R	R
Capital	263,556	–	–	–	–
Recurrent	–	55,500	59,900	62,900	66,10

Local Government and Lands

LG01 District Council Training:

Project has been terminated.

LG02 Improvement of Local Courts:

Provided for in Ordinary Budget.

LG03 District Development:

Provided for in Ordinary Budget.

LG04 Bushman Training and Settlement:

In order to make the Bushmen on the Ghanzi Farms self-sufficient it is proposed to launch three inter-related schemes which, it is hoped, will help the Bushmen adapt to the fast evolving economy of Botswana. The proposed scheme will consist of

(a) Expanding the existing facilities for educating and training the Bushmen;

(b) Establishment of a settlement scheme for the Bushmen in the Okwa Valley; and

(c) An investigation of the possibilities of a wildlife cropping scheme.

These three schemes are designed to achieve the following objectives. First, to provide education and practical training such that will enable the Bushmen to compete more effectively in the economy of Botswana, secondly, to establish a settlement area on unoccupied land away from the Ghanzi farms where Bushmen can acquire skills necessary to life in a pastoral and agricultural economy, and thirdly, to establish a wildlife utilisation scheme covering some 10,000 square miles of the Central Kalahari in which Bushmen will be employed and become main beneficiaries. In order to ensure that the scheme in this very delicate area has a sound ecological basis, certain studies will have to be undertaken. Before both the Settlement and the Wild Life Utilisation schemes are launched, a two-year socio-ecological survey of the region will be undertaken.

The D'Kar Mission is the only school for Bushmen Children. It is intended to expand the present school and also to add practical courses in carpentry, tool making, pump maintenance, hygiene and domestic science to better prepare Bushmen children for more positive and productive roles in the society. It is proposed to establish a settlement scheme for bushmen over a five-year period in the Okwa Valley. An area 12 x 12 miles will be set aside fenced and divided into four paddocks. The Settlement would be supervised by a settlement officer with training in animal husbandry and agriculture, and assisted by an ecologist, anthropologist and sociologist. The settlers would be taught the fundamentals of animal husbandry, stock management and the principles of stock ownership. It is proposed to investigate the possibilities of using the habitat of the Kalahari to maintain, develop and utilise the spectrum of wild animals which has evolved under this condition. Bushmen would be trained to operate a culling system which would provide them with a living and a surplus which could be used for the benefit of the farm Bushmen. Once the success of the scheme is proved, it would be expanded to take in about 10,000 square miless of desert and would offer a livelihood for a large number of Bushmen.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	28,840	14,590	11,550	17,050	6,000
Recurrent		13,900	21,700	7,400	7,400

LG05 Housing Corporation

Since independence, Government has undertaken to provide housing for all Civil Servants other than the lowest grades. Being by far the largest employer in Botswana, Government therefore owns most of the country's non self-built homes. Housing is provided by Government on a subsidised rental basis. The present objective is to place all housing on an economic rental basis and to create a National Housing Corporation with sources of finance and functions as described in Chapter XIII.

The Corporation will be established in 1970 and receive a two year development loan from Government to establish itself totalling R229,844. The loan for 1970/71 is R147,425 and will cover the cost of two vehicles, office furniture and equipment, office expenses, salaries, wages and travelling expenses of employees and housing. Housing will consist of one Type I, one Type II and four Type IIIs. The loan for 1971/72 is R82,420 which will cover the operating cost of the Corporation for that year.

From 1972/73 onwards the Corporation will be self-financing. Provision of capital for housing is made under Project PW15 and the figures projected below represent the capital costs of establishing the Corporation only.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	147,425	82,420			
Recurrent					

Medical Services

MD01 Gaborone:

The Princess Marina Hospital and the Lady Leishing Health Centre function as a single unit with the ultimate aim of converting the latter into a tuberculosis and infectious disease hospital. With the large concentration of civil servants and the resulting high general level of education compared with the rest of the country, there is much greater pressure on this hospital than there would be from a similar sized rural population and further expansion is necessary. When the medical ward has been built this year, the primary basic patients' accommodation will be completed. It will thus be necessary to extend existing wards as pressure on them develops. The design is such that progressive patient care can be initiated and this is most desirable as it is very economic on staff while at the same time, giving efficient attention to those who need it. These expansions will require additional furniture and equipment.

The approaches to the hospital are still very primitive as are the environs of some of the wards and domestic units, as well as the nurses' accommodation, so that during periods of heavy rain access is difficult. Further site works will be necessary. The out-patients' department requires extension to allow it to function as a health centre or polyclinic, and a casualty department is urgently required. To allow the health centre to assume its intended function as a tuberculosis and infectious diseases unit certain alterations to the internal arrangement will be necessary. With the large amount of surgery carried out at Gaborone Hospital, it is necessary to introduce physiotherapy and provision is made for a physiotherapy department with equipment.

Rural health services are increasing, and with them the scope of the senior health inspector's duties. It is necessary for him to store more special equipment and provision is made for an extension to the present health inspector's store. This extension should have a fire wall provided. The health education unit will require an office for the health education officer, an office for his two senior assistants, a small studio for the preparation of health education material, and a small store. Both the health inspector's and the health education officer's field staff will need a relatively large office for the preparation of their reports and to use as a base when they are not in the field. An office that will accommodate three people with filing cabinets is required. The present laboratory at the hospital is now much too small for the work required of it and it needs extension. As the hospital expands, more sisters will be needed and an extra flat is budgeted for in each year of the Development Plan.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	65,558	74,923	24,852	29,923	29,923
Recurrent	–	53,600	80,000	99,200	123,700

MD02 Serowe Hospital:

The population of Serowe has increased to just over 42,000 people and, in addition, the District Council has built two clinics in the village. While these clinics take a load off hospital out-patients, they make the people more "hospital minded" and certainly increase the in-patient load to a significant amount. Furthermore, Serowe is the administrative centre of the largest district in the country and patients come to Serowe from as far away as Rakops as well as being referred from Mahalapye, Palapye and Pilikwe and other areas in the eastern Bamangwato. Although a road is to be built from Francistown to the diamond mine at Orapa, the presence of this mine will increase the load on Serowe Hospital.

It will be necessary to increase the ward accommodation and when this is done, extra staff quarters will be required. As well, a modern mortuary with refrigeration facilities will be built. The present maternity ward is much too small and inconvenient. If the small laboratory and store rooms attached to this ward are incorporated into the ward and there is a rearrangement of the interior, a relatively efficient unit could be obtained. It is considered that this would be more economic than building an entirely new maternity ward and it would then only be necessary to build a new laboratory and storerooms all of which could be better designed than the present ones.

A rural maternal and child health project has started in Serowe with the help of the International Planned Parenthood Federation, and it is anticipated that this will stimulate a greater interest in children and their diseases among the population. The present paediatric ward is grossly over-crowded particularly in summer, and it will be necessary to build a new paediatric ward. The other wards are reaching the limit of their capacity and it is anticipated that the present paediatric ward which is much too small, could well take over the extra load on the female side but it will be necessary to build more male beds and a new male surgical ward will be necessary. All these improvements will require equipment and furniture.

The present out-patients' department is built of mud brick and corrugated iron and is rapidly reaching the stage where maintenance is becoming uneconomic. Furthermore, it is very badly sited and very much too small and inconvenient. It is proposed to build a combined out-patients' block with the health inspector's unit, as well as the administrative offices, in the hospital grounds where they are easier of access. This block will consist of three consulting rooms with cubicles, a dressing room, a two-room dispensary, a minor surgery, a recovery room, an injection room, a sterilising room, a waiting room, a sluice room, and a medical officer's office, a general office to take three clerk-typists and records and lavatories for both sexes with separate lavatories for the staff.

It is anticipated that a reliable electricity supply will be available to Serowe within the foreseeable future and, when this occurs, a properly mechanised laundry should be built.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	23,526	29,000	42,262	71,742	33,047
Recurrent	–	20,600	24,500	37,300	39,800

MD03 Mahalapye Hospital:

From a beginning as a small health centre, Mahalapye has expanded by the addition of a tuberculosis ward, a maternity ward, and a male ward, but remains grossly over-crowded with patients on the floor, in store rooms, in the X-ray department, and even in one of the consulting rooms on occasions, and further expansion is absolutely essential. Mahalapye has been deliberately neglected, as far as development is concerned, because sufficient medical officers have not been available to cope with the extra work that such development would generate.

Mahalapye drains an enormous area which is, for Botswana, heavily populated, there being no hospital for more than 100 miles to the south of it and the nearest to the north being Serowe 72 miles away. On the east it drains from the south of the Tswapong Hills and, to the west, the area of Kalamare, and all villages south of that on the western side of the railway line. In addition, five district clinics are run from Mahalapye and further ones are contemplated.

The first requirement is a laundry as the laundry is done in the open air at the moment. An operating theatre with usual ancillary rooms is essential as patients are sent to Serowe or Gaborone in an emergency. Such an operating theatre should be capable of expansion in the future and should be designed with this in mind.

Extra staff quarters will be required as well as extra wards. A proper kitchen and staff dining room will be necessary as, at the moment, all the patients' food is cooked in the tuberculosis ward. Provision must be made for equipment and a hospital store-room will be essential. A mortuary with refrigeration facilities will have to be built and better X-ray facilities will be required.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	22,150	42,034	50,925	24,875	26,565
Recurrent	–	23,700	28,200	32,400	46,500

MD04 Lobatse Hospital and Mental Hospital:

No further extension of patients' accommodation can be made at Lobatse Hospital without building more staff quarters, and these are phased over two years.

The mental hospital at Lobatse is being extended this year and it is essential that a male nurse should be appointed to assist the psychiatrist in the running of this hospital. Other staff live out at the moment, some of them at least three miles from the hospital and provision should be made for housing them nearer – particularly those who are essential.

As with Serowe and Mahalapye, a similar out-patients' block will be built at Lobatse hospital and the present dispensary building taken over by the health inspector and the junior health education staff. The present isolation ward is so badly designed and constructed that a new one needs to be built in its place. The present ward will be used as changing rooms for staff. The present teaching unit is most unsatisfactory as it consists of one single room and a sister tutor's office. The teaching unit will be extended by the provision of a demonstration room.

Once the staff quarters have been built, a new ward will be required to reduce the gross over-crowding. It is proposed that it should be a surgical ward, particularly as a new operating theatre is necessary and will be built the year afterwards. The present operating theatre consists of two rooms knocked into one. It leads off a main traffc corridor and could be converted into a small semi-private ward or a delivery room. The usual provision is made for furniture and equipment for all units. A mortuary with refrigeration facilities is included.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	31,500	60,175	33,537	60,175	58,590
Recurrent		24,900	45,900	53,300	73,000

MD05 Gaborone Health Centre:

Project completed.

MD06 Francistown Hospital:

Project subsumed under Shashe Complex project.

MD07 Maun Hospital:

As the hospital is on tribal land, there is no means whereby animals straying into the hospital grounds can be impounded and despite the fact that there is good soil and abundant water, it is very difficult to keep a vegetable garden going for the patients. The result is that vegetables have to be imported at great expense. It is therefore proposed to fence the whole of the hospital grounds in order to keep out goats. An office is required for the senior medical officer who would be in overall charge of the district, including the sleeping sickness service, malaria and bilharzia control activities and other problems both in Ngamiland and Chobe – as recommended by the World Health Organisation.

The health inspector also requires an office for himself and his anti-malarial staff as well as a reasonable store-room. These could well be combined in a unit with the senior medical officer's office. The laundry facilities at Maun are of the most primitive and a laundry is urgently required. It is anticipated that the hospital will soon be on the main Maun supply, and, if the current is sufficient, the laundry should be electrified. The hospital is overcrowded at the moment and an extra ward is necessary, as well as extra staff quarters to house the extra staff required. The usual provision is made for furniture and equipment.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	38,340	53,235			
Recurrent		9,200	23,800	23,900	25,300

MD08 Kasane Health Centre:

With the expansions made at Kasane in the way of extra beds, the present very small kitchen is not sufficient and it should be enlarged. As well, an office and storeroom need to be constructed for use by the Senior Health Assistant. From the point of view of development, Kasane is a difficult problem because indications are that it may well become a very popular tourist centre. If this is the case, a small hospital, in the new township, would be required, but I think that more definite indications are necessary before embarking upon this. It should, however, be noted that the present health centre site does not permit of any further expansion and any new hospital would have to be built in the new township.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	2,600			–	–
Recurrent	–			–	–

MD09 Ghanzi Health Centre:

Project completed.

MD10 Good Hope Dispensary:

Project completed.

MD11 Shoshong Dispensary:

Project completed.

MD12 Health Education:

Project subsumed under Central Training Unit Project.

MD13 Tsabong Health Centre:

Two type-V houses are required. Water-borne sanitation facilities should be installed in the present staff quarters. One of the biggest problems in the Tsabong area is the treatment of patients with tuberculosis, and a very simple ward is required for those who live too far away to come for regular treatment. A dressing room is required at the health centre.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	2,950	3,600	8,100	–	–
Recurrent	–	–	–	1,000	1,100

MD14 Pilikwe Health Centre:

Pilikwe Health Centre serves a densely populated area of eastern Botswana. At present cooking is done in the staff nurses' sleeping quarters, clearly an undesirable state of affairs, so a proper kitchen is planned to be built in 1970/71. From 1971/72, a Health Assistant will be stationed at Pilikwe and quarters will have to be built plus an office and storeroom. It is also necessary to install proper sanitation, sluice and ablution facilities.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	1,800	6,900	–	–	–
Recurrent	–	–	500	500	600

MD15 Palapye Health Centre:

A small health centre is being built with funds generously donated by the Deferred Pay Interest Fund of the Chamber of Mines. This requires extension as Palapye is the centre of a large area of population. It is proposed to station a health inspector at Palapye and he will need office accommodation and a storeroom. With the extension of the health centre, extra nursing staff will be necessary and quarters must be built for them.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	26,650	13,235	16,235	6,000
Recurrent	–	2,200	2,900	3,500	4,800

MD16 Central Training Unit:

The growth of medical services in Botswana hinges on the ability of the Department to train sufficient registered nurses, midwives and health assistants so that development that has taken place to date can continue and so that future services may gradually improve. The exploitation of mineral deposits in the North will also place an added burden on an already stretched staff requiring as it does a substantial degree of health infrastructure. It takes at the present rate of training four years to produce a general nurse for registration and one year thereafter to train a registered midwife. If, however, reasonable training facilities were provided, the length of general nurse training could be reduced to 3½ years in the case of a nurse with Junior Certificate and to 3 years in the case of a nurse with O level. The new demand for registered nurses over the next five years is as follows:–

1970/71	1971/72	1972/73	1973/74	1974/75
R	R	R	R	R
15	49	63	77	95

In order to meet this demand a start must be made to train nurses now. Increasing numbers of qualified school leavers are being produced to supply the training school with the candidates it needs so this is not a bottleneck, rather what it is hampering progress is lack of adequate training facilities.

In addition to the training of registered nurses and midwives it is necessary to train an increasing number of health assistants. The demand for these people is insatiable, not only is there a need to provide adequate staff for the present out stations but some must also be made available to District Councils for their health and sanitation services which are growing all the time. It is proposed to double the intake of trainees from 10 to 20 when accommodation and training facilities are available. Allowing for wastage it is anticipated that a stream of 16 qualified health assistants with two years of training will become available each year from 1973.

As well as providing training for nurses and health assistants it is also necessary to give all registered nurses, midwives and health assistants already in service regular refresher courses. Post graduate courses are also planned in ward and hospital administration as well as public health, rural sanitation, microscopy, simple laboratory procedures and training in stores regulations.

To meet these training demands it is proposed that a Central Training Unit should be built in Gaborone to be staffed, originally, by the two sister tutors and the male tutor already employed with strengthening by staff from W.H.O. The project is supported by W.H.O. and has been endorsed in the reports of a stream of visiting health experts over the past two years.

The project will consist of the construction within the grounds of the Princess Marina Hospital Gaborone of the following: Men's and Women's Hostels, enlargement of the Dining Hall, Covered Ways, Hall and Lecture Rooms; as well a Senior Tutor's house and Tutorial housing will be provided. Furniture and equipment is also necessary as is provision for fees and expenses. The scheme will be phased over three financial years with the bulk of expenditure planned for 1970/71.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	141,750	116,250	85,735		
Recurrent	–	13,800	14,000	14,500	15,000

MD17 Medical Equipment:

In recent years there has been a substantial investment in capital construction of hospitals and health centres. Improvements have thus been effected in physical plant. A recent comparative improvement has taken place also in the staffing position at hospitals and this has revealed the inadequacy of certain of the older equipment and the lack of suitable modern equipment in the district hospitals. The supply of this equipment will improve the quality of work done and improve the conditions under which staff work particularly in theatres; this against a background of rapidly increasing amount of work being done.

This project is directly related to the project for the development of the Gaborone Hospital and to the project for the development of District Medical Services. It is also indirectly connected to all other projects in so far as the qualitative improvements it effects on the population will mean increased performance and efficiency of operation and execution of these schemes.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	15,000	15,000	15,000	15,000	15,000
Recurrent					

MD18 Rakops Health Centre:

Rakops is on the Botletle River and the supply of water presents no problem. It is therefore considered essential to put water-borne sanitation into the Medical Aide's house. Rakops serves a large area in which there are several big villages, with resulting public health problems. It is proposed to station a Health Assistant at Rakops to carry out public health work and he will require a house and office, and a storeroom.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	5,400	–	–	–	–
Recurrent	–	500	600	600	600

National Development Bank

ND01 Borehole Repayment Programme:

This highly successful programme, through which individuals and syndicates obtain loans for the drilling and/or equipping of boreholes or permanent wells, has operated at a subnormal level during 1968 and 1969 due to the inability of the Geological Survey Department to site and drill repayment boreholes. Shortages of staff in the drilling branch, and the need to deploy staff and drilling machines to assist with mining prospecting and to improve urban water supplies, have meant that the National Development Bank has been unable to meet the demand for repayment boreholes. A backlog of 150 applications for boreholes loans has accumulated and the flow of additional applications from creditworthy applicants continues to mount.

It is confidently anticipated that the staffing problems the Geological Survey Department will be considerably reduced by 1972 (see project GS02). It will therefore be possible for a considerable number of repayment boreholes to be drilled and equipped during the Plan period. In order to be able to service the loan requirements of borehole applicants the National Development Bank will require new injections of funds to augment income available from its existing activities and from the proceeds of the sale of rural State land. This will be a short-term requirement to cope with the backlog of applications. Thereafter, the National Development Bank should be able to meet new demands from its annual income.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	150,000	200,000			
Recurrent					

ND02/03 Agricultural Credit:

The demand for agricultural credit is linked to the expansion of agricultural extension services, (and, to a lesser degree, to annual climatic conditions). For the past three years, loans to farmers for implements, seed, fencing, fertilizers and bush clearance have been financed from funds made available to the Bank by the Freedom from Hunger Campaign. By the end of 1969, it is estimated that these funds will have been fully committed.

It is likely that there will be a significant increase in the demand for agricultural credit during the Plan period. The enactment of legislation providing for the establishment of Tribal Land Boards removes from the traditional tribal authorities the right to allocate land and is likely to pave the way for changes in the land tenure system in Botswana. Greater security of tenure in turn will create a demand for fencing and for loans with which to effect permanent improvements to agricultural land. In addition the experiments which are being conducted by the Ministry of Agriculture and under the auspices of the U.N. land and water survey project (see Project ID02) into the prospects of small scale irrigation are likely to result in applications for loans for the establishment of irrigated holdings and market gardens.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	50,000	75,000	100,000	80,000	75,000
Recurrent	–	–	–	–	–

ND04 Co-Operative Credit:

Project completed.

ND05 Commercial and Industrial Credit:

While few applications have been made to the Bank for loans for the establishment or expansion of industries, the Bank has been unable to cope with the demand for loan capital for commercial undertakings. The creation of a Botswana Development Corporation will assist in the identification and promotion of industrial projects, and it is accordingly anticipated that the National Development Bank will have to acquire additional funds to meet the loan requirements of industrial and commercial entrepreneurs.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	75,000	100,000	125,000	150,000	175,000
Recurrent	–	–	–	–	–

ND07/08 Housing Finance:

Provided for under Project PW15.

Police Department

PD01

It is the intention of the Botswana Government to continue its policy of providing for the staged expansion of Police facilities in Botswana with the aim of achieving an adequate coverage of the country by the end of 1974/75. Thereafter it will only be necessary to expand the Police Force as the population of Botswana grows.

Eleven new Police stations will be constructed during the Plan Period at Nojane, Kalkfontein, Moshupa, Gomare, Bokspits, Tonota, Olifants Drift, Bobonong, Rakops, Werda, and Tshane, and a new District Police Headquarters will be required at Mahalapye. In addition office accommodation for the Special Branch will be built at Gaborone, Lobatse, Serowe, Palapye and Kanye. Police posts which will be required at the new mining areas have been included in the Shashi Complex Project.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	109,700	82,000	19,000	9,000
Recurrent	–	6,500	14,000	19,000	24,000

Posts and Telegraphs

PT1 to PT13:

Projects terminated.

PT13 Carrier Transmission Circuits:

This equipment is urgently required on trunk routes where the capacity is overloaded. A first round of installation has already been made on the main route between Lobatse and Francistown, with international connections at each end. In 1970/71 the capacity of trunk "feeder" routes will be increased. A second round of investment is planned for the main trunk route, not on the basis of the existing line which cannot be increased in capacity, but on the basis of a U.H.F. radio link (see Project PT16). The radio can take up to a maximum of 60 channels, and these will be purchased and installed as traffic grows to justify them.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	5,400	65,000	25,600	17,000	17,000
Recurrent		1,000	1,500	1,900	2,200

PT14 Telephone Exchanges Equipment:

It is proposed to introduce automatic telephone exchanges throughout Botswana in the course of the Plan Period, with direct dialling in most centres. In the main centres of Francistown, Gaborone, and Lobatse there are at present 1,000 lines on automatic exchanges. This will be increased to 1,900 lines in 1971/72. At the same time 200 lines will be required at Orapa, and 300 at Selebi-Pikwe. By 1974/75 the three main centres will require a further 800 lines, if demand rises as anticipated, and Selebi-Pikwe will require 200 further lines. In 1971/72 700 automatic exchange lines will be required to replace manual lines in the rural towns of Mahalapye, Palapye, and Serowe. In 1973/74, and 1974/75 small automatic exchanges of 100 lines each will be installed at Maun, Kanye, Mochudi, and Molepolole. It is calculated that these exchanges will pay for themselves within seven years on the basis of increased local traffic alone, and not taking into account the trunk calls generated.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		350,000		30,000	120,000
Recurrent					

PT15 New Telephone Lines:

It is proposed to construct a direct land line link with Maun, by extending the line from Orapa by the end of this year. The present link to Maun is by radio telephone, but traffic is building up and will easily cover the costs of a line. This will be due in part to the Tourist and Safari industry. A particular advantage of the line will be the possibility it opens for a 24-hour service. The existing radio can be transferred to other parts of Botswana where it will not cease to earn revenue. A line will also be required to link Selebi-Pikwe to the main trunk route. This is planned for 1970/71.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	24,000	–	–	–	–
Recurrent	–	300	300	1,300	1,300

PT16 Telegraph Equipment:

The Government is in the process of installing a telex exchange in Gaborone. The exchange has cost, with ancillary equipment, R66,000. At present there are thirteen teleprinters operating in Botswana, linked to exchanges in other countries. The situation is politically unsatisfactory, and means the loss of considerable revenue. The number of applications for connections to the exchange is such that it will be completely filled from the time of installation. Extensions will be justified in 1970/71 and probably by 1975/76.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	22,000	–	–	–	–
Recurrent	–	200	200	200	200

PT17 Radio Communications Equipment:

The main trunk route from Lobatse to Francistown is carried over wires whose capacity can no longer be increased by the addition of circuits. Further capacity will be required from 1971/72 onwards, or delays which at present persist for only short periods will become as long as six or eight hours. Rather than install lines which would cost in the region of R50,000 per line, and could carry only twelve circuits, it is proposed to install a U.H.F. radio link which can carry 60 circuits. The radio will cost R100,000.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	100,000	–	–	–
Recurrent	–	–	1,000	1,000	1,000

PT18 Underground Cabling:

The demand for cable is related to the growth in the number of subscribers, and is therefore part of the general expansion of the telephone service. Growth in subscribers in past years has been at, or

above, a rate of 15% p.a., and is likely to continue at this rate over the Plan Period. In addition, cable is required whenever a new exchange is installed, and two new exchanges are planned for the mining areas. An agreement has been prepared by which Government can draw down up to R250,000 of cable as required. The estimated draw down is as follows.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	22,500	107,500	30,000	50,000	40,000
Recurrent	–	–	–	–	–

PT19 Post Office and Exchange Buildings:

The programme of Post Office construction has been successfully implemented. Two buildings remain to be constructed, one at Moeding the other at Hukuntsi both in 71/72. They will cost R3,500 each. From 1971/72 onwards buildings will be required to house about half of the new exchanges which it will not be possible to install in existing buildings.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	30,000	12,000	18,000	12,000
Recurrent	–	1,000	4,000	5,500	7,000

Printing

GP01 Printing Equipment:

This project has been completed save for a few minor expenditures associated with the installation of equipment at the Government Printer. The equipment purchased and installed includes printing, numbering, and cutting machines, and will enable the Printing Department to cope with upsurge in demand for printed material, forms, etc., that it is anticipated Government requirements alone will bring about during the Plan period. In addition, the new equipment will increase printing revenues by enabling the Department to improve quality and take on a larger volume and more varied range of commercial work.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	1,000				
Recurrent					

GP02 Office Equipment Maintenance:

At present all Government machines, including typewriters, adding machines, and calculators, have to be put out to private firms for repair and maintenance. In Gaborone alone the annual cost of this work is estimated at R25,000, and the system is wasteful in that it does not allow for regular preventative maintenance. The result is that machines often break down more than once within a short time period, necessitating two or three services instead of one complete overhaul.

It is therefore proposed to establish a maintenance unit for Government machines under the Government Printer. The unit will need tools and repair facilities and equipment, and will start with several machines in stock for replacement whilst overhauls, repairs and maintenance work is being carried out on machines in the existing stock. The immediate saving is estimated to be about R18,000 per annum, but this should increase as the operation expands its services to Government offices outside Gaborone, and employees to be trained under the scheme reach higher levels of efficiency.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	5,000				
Recurrent	7,000	7,000	7,000	7,000	7,000

Public Works

PW01 Gaborone – Lobatse Road:

The road between Gaborone and Lobatse is the busiest stretch of the main North-South Road. Vehicle counts have reached an average of 360 per day and the problem of maintaining what is essentially an earth road has become so great as to be beyond the capacity of the P.W.D.. Expenditure in past years has been incurred in order to re-align the road. The upgrading of the road to first class paved standards is now fully justified. It is planned to carry out a detailed feasibility study in 1970/71. S.C.A.A.P. funds have been made available for this study. By 1971/72 construction should be begun and will probably be phased over the next four years. The roads from Lobatse to the Border and from Gaborone to Content Farm have been incorporated into this project and will also be paved.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	100,000	1,000,000	500,000	500,000	500,000
Recurrent	–	–	–	–	–

PW02 Gaborone Sewerage:

The growth of Gaborone in its early years has been such that what should have been a phased programme of building on plots already reticulated for sewerage etc., was thrown out of balance by the immediate necessity of increased house construction. In order to replan the sewerage for Gaborone to take realistic account both of the pace of development, and the necessity of providing water-borne sewerage in the high density areas, Consultants were engaged to study the problem and their report has now been accepted as the basis for Government action. U.K. Development Funds have been expended in the early phases of the work which would otherwise have been delayed through financing difficulties, with painful consequences. The money will be considered as on-lent to the Town Council and repayments will flow as revenue to Central Government. Future phases will be financed from commercial lending sources and the whole scheme is intended to, and should, be completely viable.

The work to be undertaken in the next two years is as follows:–

1970/71 (i) Gravity mains will be installed to connect manholes 15 and 33 to the newly constructed ponds and the Southern Interceptor Sewer. This is part of the plan to relieve pressure on the existing ponds and allow capacity for expansion of the service to the high density areas;

(ii) The Northern half of the Industrial Area (ext. 13) will be reticulated.

(iii) Reticulation will be extended to Government housing in Extension 12.

1971/72 (i) The old treatment works having been relieved of part of their load. 300 plots in Extensions 7 and 8 will be reticulated, and up to 80 plots will be reticulated in Extension 11. Recurrent Expenditure will be the responsibility of the Town Council

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	200,300	178,500	186,700	211,400	217,000
Recurrent					

PW03 Township Roads:

Gaborone continues to expand at a rate which outstrips the original forecasts, with the result that building development has been taking place ahead of the necessary services. Development is beginning or about to begin in Extensions 4, 11, 12, 13 and 14. By 1970/71 in the case of Extension 13 and 14 and by 1971/72 in the case of Extensions 11, 12 and 4, developments will have reached a point where the construction of roads within the Extensions is necessary. It is proposed that in the first instance only earth roads will be constructed. Within a few years the roads will be upgraded to a gravel surface but further upgrading should not be necessary since none of the traffic carried by these roads will be through traffic.

Taking into account the present development of Extension 9, and the development of Extension 11, as well as the ordinary traffic increase over time in Gaborone, it will probably prove necessary to pave the Northern Outer Ring Road which runs from the Airport Road to the main North/South Road by 1972/73. It may be justified to delay it for a further year, however, and traffic counts will be made to ascertain this. In addition, roads will be required in the government owned southern extension to Francistown which is to be developed during the plan period. At present only a rough estimate of costs can be made.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	31,000	51,000	40,000		
Recurrent		1,000	2,000	2,250	2,500

PW04 Tlokweng Drainage:
Now part of PW27.

PW05 Gaborone Border Road:
Project completed.

PW06 North-South Road:

(a) As part of the overall Shashe project it is planned to borrow R600,000 from the World Bank to finance the upgrading of the road between Francistown and Seruli in 1971/73. It is likely that by 1974/75 traffic will have risen to the point where paving of the road surface would be justified at a cost of about R2.5 million. It is planned, therefore, to begin paved construction in that year.

(b) Secondly, there is an eighteen mile stretch of the North-South Road from Pilane northwards which has become a major water course. It becomes impassable in the rainy season, and the suddenness of flooding in this section is a threat to life. The road will require to be reconstructed, re-aligned, and have proper drainage structures installed. The cost will be R10,000 per mile and the re-aligned length will be 16 miles. Taking into account user costs, maintenance costs, and accidents, the present value of cost savings is R315,000 compared with a cost of R160,000. This section will be completed in 1970/71.

(c) Thirdly, it is planned to re-align the existing 59 miles of road between Artesia and Palla Road. The present road crosses the railway line at each of these points, and swings well to the east. The project road will eliminate the two crossings and cut the length of journey by ten miles. The present road runs through sand and as a result of repeated grader operations has sunk to a level of between three and six feet below that of the surrounding country side. The new road will be of good quality gravel costing R10,000 per mile. The road from Parr's Halt will have to be extended six miles to meet the new road. The present value of cost savings which will accrue from 1971 onwards is R630,000 as against a cost of improvement of R550,000. The costs will be spread over two financial years although one contract will be let.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital a		300,000	300,000		600,000
b	160,000				
c	200,000	350,000			
Total Capital	365,000	650,000	300,000		600,000
Recurrent					

PW07 Main Road Improvements:

In the past three years the roads from Ramotswa to Thamaga, from Lobatse to Kanye, and the first four miles from Gaborone to Molepolole have been upgraded. Within the present plan period it will certainly be justified to upgrade the road from Gaborone to Molepolole in its entirety. In 1968 an average of ninety vehicles per day used the road (and at points the count reached 200 vehicles). The present road is of earth and sand, with bad drainage. It requires heavy maintenance, which it is not given. The road is closed to normal traffic on several days each year. It is planned, therefore, to reconstruct, and realign the remaining 29 miles of unimproved road from Mogoditshane to Molepolole at a cost of approximately R8,300 per mile. The same maintenance expenditure as at present will be incurred with better results. The capital costs will amount to R240,000 and the cost savings will amount to over R400,000. In the expenditure projections given below it is assumed that construction will be phased equally over the two year period 1971/73.

Within the plan period it will be necessary to undertake feasibility studies on various other main roads requiring improvements. Into this category come the road to the Molopo region (which serves new ranching developments), the Sebinas-Totome road, and the network of roads between Kanye, Molepolole, Gaborone, and Lobatse which will be subjected to an intensive traffic origin and destination survey. This would clarify the traffic flows and goods shipped between the villages of Kanye, Moshupa, Thamaga, Molepolole, Ramotswa, Mankgodi, Gabane, and Mogoditshane. There is a danger of upgrading roads which will take traffic from each other, and there is no way of arriving at an optimum solution without new data. It is likely that expenditure will be necessary on these roads within the plan period. A provision of R300,000 is thought to be reasonable.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		120,000	220,000	100,000	100,000
Recurrent					

PW08 Township & Village Roads:
Now part of PW03.

PW09 Road Maintenance Training:
Project completed.

PW10 Road Depots:

Despite the fact that sufficient relevant data is unavailable, it is clear that, up to a certain minimum level, maintenance of existing roads must have a higher priority than new investment and upgrading works. The standard of maintenance in Botswana is among the lowest in Africa, and expenditure in

recent years has not risen as fast as the traffic densities to which it should be related. A project which will increase the efficiency of the money spent on maintaining the roads must therefore have an extremely high priority.

The Road Depot Programme is designed to make the most economic use of scarce plant and skilled labour resources by locating them close to the work and diminishing time spent unproductively. Five depots are planned for 1970/71, at Seruli, Tsamaya, and three on the Francistown/Orapa Road. Five are also planned for 1971/72, but the location cannot be decided until the transport network relating to mining is finalised. The cost of depots is R8,000 each.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	52,000	40,000			
Recurrent	–	1,000	2,000	2,000	2,000

PW11 Airfields Improvements:

In a country where the population centres are separated by vast distances of arid and largely uninhabited land an air service can provide a cheap and flexible means of communication. Government is now in a position to influence the investment decisions of Botswana's national air carrier and the opportunity is therefore available for an integrated policy of investment in airfields and planes. The majority of Botswana's 47 airstrips are 3000 feet or slightly more, in length and have earth, sand, or grass surfaces. If well maintained they are quite adequate to take the type of small plane which is suitable for a large proportion of internal air services.

There are four main exceptions.

(i) Gaborone Airfield (see Project PW12).

(ii) Francistown Airport. Once mining operations are under way this will become the busiest airfield in Botswana. It will require to be strengthened and improved at a cost tentatively estimated to be R100,000. No estimate is made in the budget as this is a privately owned airfield.

(iii) Maun and Kasane airfields. Both these places are fast becoming the centres of tourist activity. If advantage is to be taken of this development their airfields must be capable of taking 40/60 seater planes carrying package tourists. Improvements to Maun will cost about R65,000, and a new strip at Kasane about R80,000.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	45,000	25,000	80,000		
Recurrent		2,000	2,000	2,500	2,500

PW12 Gaborone Airfield:

It is proposed that Gaborone airfield should be able to accommodate shorthaul jets on international flights on the Lusaka-Gaborone-Johannesburg route. Consultants have reported on the existing airfield and recommend that it should be temporarily lengthened and continue in use till 1976. Meanwhile construction of a new airfield should begin in 1974/75 and once it is complete the existing one should be reclaimed for residential purposes. The decision to do this is still under consideration and depends upon financing arrangements, but at present no better solution is obviously available. The new airfield will cost R1.2 million.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		83,000	82,000		292,000
Recurrent					

PW13 Mechanical Workshops:

The Government fleet continues to increase in size, and the amount of construction equipment and plant in operation has doubled in the past two years. To maintain this investment in efficient working condition it is necessary to increase Government's workshop capacity.

1970/71. Three additional vehicle bays are required at Francistown, with power supplies and other facilities. Five breakdown vehicles are necessary for the workshops at Gaborone, Francistown, Mahalapye, Lobatse, and Maun, which at present have none.

1971/72. It is proposed to establish a small depot at Ghanzi which will consist of a vehicle bay and ramp, a small office, lock-up store, and basic equipment.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	17,300	7,000			
Recurrent		430	700	700	700

PW14 Rural Power Supplies:

Most of the major population centres outside the gazetted townships are without any public electricity supply. It is proposed during the Plan Period to install small diesel power plant at several main centres as follows:

1971/72 Serowe	R100,00
1972/73 Kanye	R 50,000
1973/74 Molepolole	R 90,000

There have been administrative problems in operating such schemes (Palapye, Mahalapye) in past years. The implementation of these plans will be delayed until such problems have been ironed out, and until market research demonstrates that the schemes are commercially viable in each case. Recurrent costs will be met from revenues within the scheme.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		100,000	50,000	90,000	
Recurrent					

PW15 Government Housing:

As mentioned in Part I of the Plan a Housing Corporation will be established at the beginning of the Plan period. It will be responsible for the provision of Public Service Housing and also for implementing Government's plans for low-cost housing.

At present there is serious shortage of Public Service Housing. As a consequence it will receive high priority in the early years of the plan in order to make up for a back-log of requirements. Approximately 200 high cost houses of the Type I, II, III and IV variety costing R1,160,000 will be built in 1970/71. These will be financed from the Government Bond Issue which will be floated in 1970. Thereafter it is hoped that the Housing Corporation will increasingly be able to furnish its own finance. This accounts for the tailing off of estimated expenditure listed in the table below, even though housing requirements of this nature are expected to grow along with the growth in Government activity.

Government's Low Cost Housing programme will absorb an increasing amount of funds over the plan period in view of the critical shortage of low cost accommodation in Gaborone, Lobatse, and Francistown. Of the three centres Francistown has been singled out as the major priority. It is hoped that by 1975, 1500 houses will have been built in Francistown, 1000 in Gaborone and 500 in Lobatse.

The recurrent cost of all housing will be met by the National Housing Corporation or Town Councils from the revenue obtained from rents.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	1,667,000	1,500,000	1,200,000	1,000,000	1,000,000
Recurrent					

PW16 Government Buildings:

As a result of recent additions to Government Establishment, and taking into account the proposed, and likely additions in the future, it is estimated that it will be necessary to construct not only the new office block, costing R350,000, which was planned for in 1968/69 and is yet to be built, but also extensions to existing offices, as well as another completely new block in 1974/75.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	265,630	350,370	100,000	–	300,000
Recurrent		4,500	6,500	8,500	8,500

PW17 Meteorological Equipment & Meteorological Stations

(a) The Botswana Weather Bureau exists to supply vital weather information for civil aviation needs, and to collect climatological data which are an essential prerequisite for the long term planning of agricultural and hydrological developments. The Bureau is badly in need of a Data-Processing machine and it is hoped that WMO aid will be made available in 1970/71 for the purchase of this equipment. Also, if aid is available in 1970/71, additional telecommunications equipment in the form of four tele-printers, will be acquired. In 1972/73 it is planned to install an automatic weather station in Botswana capable of transmitting climatic data every six minutes. By that time the Bureau should be capable of making its own forecasts and therefore able to profitably use equipment capable of receiving pictures of cloud formations transmitted by satellite.

(b) At present in distant parts of Botswana, Police radio operators are taking three-hourly meteorological data required by the World Weather Watch. The Police will now be relieved of this burden and 6 trained personnel will assume these duties at Tshane, Shakawe and Tshabong. Telecommunications equipment is being donated by the World Meteorological Organisation Voluntary Assistance Programme and this project makes provision for the construction of the necessary stations and houses. These latter will be completed in 1970/71.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital (a)	39,400	32,450	27,650	24,750	17,750
Capital (b)	13,195	–	–	–	–
Total	52,595	32,450	27,650	24,750	17,750
Recurrent	–	2,300	2,300	2,800	2,800

PW18 Nata-Kazungula Road:

U.S. AID have financed an "Economic Feasibility, Preliminary Engineering and Cost Estimates, Alignment and Design Standards" study of the proposed 185 mile road link from Francistown to Kazungula. The project will include the construction of a new road from Nata to Kazungula, and the upgrading of the existing road from Francistown

as far as Nata. Preliminary reports confirm the viability of the proposed road link, and indications are that Government will support the project and seek donor finance (probably U.S. AID) to enable construction to take place. The Nata - Kazungula stretch (185 miles) is costed at R2.3m. (i.e. R12.400 per mile). It is possible that some arrangement could be made with Zambia to divide the costs of maintenance between the two countries. Negotiations have still to take place.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	1,400,000	900,000	–	–
Recurrent	–	–	8,000	40,000	40,000

PW19 Kazungula-Ngoma Road:

This road, which links the main Nata-Kazungula road with the Caprivi Strip by a bridge at Ngoma is similarly the subject of study by the Consultants. Even if the Consultants do not demonstrate the viability of the main road, the present traffic on this road justifies realignment and reconstruction. It is also essential that this road is diverted south of the riverine strip if the Chobe National Park is to be successfully developed as a tourist attraction. This being so the Government may not await the availability of donor finance but, instead, use commercial loans and apply a toll such that the capital cost is recouped within five years. The 41 miles of road (which does not include a small part which will be known as the Kasane by-pass and is to be designed as part of the overall development of Kasane as a resort) is estimated to cost R600,000 at approximately R14,600 per mile.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	–	600,000	–	–	–
Recurrent	–	–	–	–	–

PW20 Gaborone Water & Electricity Unit:

In 1970/71 a start will be made on the 10-year Investment Programme drawn up for the GWEU by Consultants. As a result, by the middle of 1971 an additional 2500 KW generating capacity will be available to the Unit. The cost of this first phase, which will involve the building of an extension to the existing power station will be R530,000. The expenditure of this amount will take place in the 1971/72 financial year. In 1970/71 expenditure will be confined to extensions to the reticulation systems in Lobatse and Gaborone, the building of additional offices and accommodation and the purchase of some minor equipment, at an overall cost of R183,000. In addition in 1970/71 the Unit will have to repay Government advances which financed previous investments. This will amount to R717,000. The second phase of the Investment Programme will be due for completion in 1974 at an estimated cost of R248,000. Recurrent expenditure will be met out of the Unit's revenue account. Recently Parliament has brought into being the Botswana Power Corporation and the Water Utilities Corporation. The GWEU as such will therefore cease to exist and its functions will from the 1st January, 1970 be the responsibility of the respective corporations.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	900,000	688,000	140,000	166,000	344,000
Recurrent	–	–	–	–	–

PW21 Francistown Power Station:

Project completed.

PW22 Ghanzi-Kanye Road:

At present there is almost no traffic on the Ghanzi-Kanye road and the least-cost criterion is inapplicable. The condition of the road is such that a truck must be depreciated over nine months if it makes regular use of the road. Nevertheless, three or four farmers have begun to move their cattle by truck from Ghanzi to Lobatse. When the cattle are trucked there is time-saving, a weight saving, and the farmer has the opportunity to choose the time when the beast is sold giving definite price advantages. It has been calculated that a gravel road sufficient to carry the whole offtake of the district when trekked would cost R900,000, and R40,000 per annum to maintain. The benefit, per beast shipped, has been estimated at R12. It is probable that the road can be justified but certain projections concerning offtake from the Ghanzi Farms, and the Western State lands are still to be tested, and experiments need to be carried out on trekking cattle from Ghanzi to Lobatse since weight loss may occur in only one part of the journey justifying a road from Kanye to Kang, but not beyond.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		250,000	400,000	250,000	
Recurrent			8,000	20,000	40,000

PW23 Francistown-Nata Road:

If the Nata-Kazungula Road project goes ahead it will probably prove necessary to upgrade the 120 miles of road between Francistown and Nata. The existing gravel road is only a "scrape and fill" road. The whole road would have to be reconstructed, using new gravel, and new drainage structures. The cost estimate per mile made by the Consultants is R6,700 per mile giving a total cost of R800,000.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital			800,000		
Recurrent			10,000	20,000	20,000

PW24 Selebi-Pikwe Airfield:

It is planned as part of the Shashi Complex infrastructure to construct an airfield at Selebi-Pikwe capable of taking D.C.4's and aircraft of the Fokker Friendship type. Construction will take place in 1971/72 at a cost of R120,000. The surface will be gravel and will suffice until such time as the township is complete and more regular services are required. This should be in 1973/74, by which time a paved surface will be fully justified.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital		63,000		102,000	
Recurrent		5,000	5,000	5,000	

PW25 Francistown-Orapa Road:

The road which will link Francistown with the diamond mine at Orapa will be completed in 1970/71. Out of a total cost of the R2¼ million it is estimated that R900,000 will be required in 1970/71 for its completion. Finance will continue to be provided out of the Anglo-American loan for R2.3 million made to Government in 1969/70.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	900,000				
Recurrent					

PW26 Rural Sewerage – Government Properties:

Government plans to install hygienic systems of effluent disposal in major Government properties throughout Botswana, which at present, according to the Department of Health, are a considerable hazard. A start has already been made on those properties where conditions are the most critical viz. Serowe Hospital, Serowe Teacher's Training College and the Serowe Police Lines. It is planned to complete the project in 1970/71 by sewering the properties at Francistown, Mahalapye, Maun, Molepolole, Gaborone New Camp, Tshabong, Mochudi, Baines Drift, Kanye and Bobonong Police Station.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	79,350	–	–	–	–
Recurrent	–	–	–	–	–

PW27 Township Surface Water Drainage:

The surface water drainage system for Gaborone is inadequate in certain parts where building has been completed, and needs to be extended to take account of future building programmes. Consultants (Brian Colquhoun and Partners) were engaged to make a study of the problem and outlined a scheme which covers the period up to 1983 and will cost R700,000.

(i) 1970/71 Drainage is required in the Northern half of Extension 13 (Industrial Area) and Extension 14. Outfalls must be constructed for these areas and in certain other places around the town.

(ii) 1971/72 Drainage must be installed in Extension 11 in preparation for building activities, and in the high density areas Extension 7 and 8, which at present flood quite readily when rain falls. (Recurrent costs are the responsibility of the Town Council.)

In addition, surface water drainage will be required in the Government owned southern extension to Francistown which is to be developed during the Plan period. At present only a rough estimate of costs can be made.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	27,000	65,000	30,000	60,000	28,000
Recurrent	–	–	–	–	–

Surveys and Lands

SG02 Survey Equipment:

The objective of this project is to enable the Department of Surveys and Lands to purchase from time to time much needed equipment used in survey work. During 1969/70 the Department purchased the following:– radio equipment, Survey Draughting equipment and an electronic short distance measuring equipment. In 1970/71 the Department intends to purchase tellurometers which are high accuracy distance measuring instruments, portable survey towers for elevation of instruments above ground beacons and a portable programma.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	16,213	–	–	–	–
Recurrent	–	–	–	–	–

SG03 Town and General Mapping:

This project was started in 1967/68 and the first phase of its objectives has been accomplished. All towns and major villages have now been mapped and large scale mapping foundation established which may be added to as developments require, revised and updated at regular intervals. It is proposed during 1970/71 and subsequent years to revise existing township mapping, starting with Lobatse. The cost of large scale mapping revision is estimated at R10,000 per annum. The balance of the funds will be spent on new photography and mapping, starting with additional Francistown mapping in 1970/71 and Thamaga in 1971/72, and in accordance with the demand which arises in subsequent years.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	20,700	20,700	20,700	20,700	20,700
Recurrent	–	–	–	–	–

SG04 Township Surveys:

In 1968/69 approximately 2,000 lots were laid out at Gaborone and 300 at Kasane. During 1969/70 200 industrial lots at Francistown were demarcated and 1,500 in the new mining town of Selebi-Pikwe, including contractor's labour lines and temporary housing areas.

During 1970/71 the first phase of Selebi-Pikwe will be completed, a high and medium density housing area demarcated at Ghanzi, and a start made with the demarcation of new high and medium density township areas at Francistown south of the Tati River. During 1971/72 it is proposed to demarcate residential areas at Lobatse and to continue the demarcation of the new Francistown extension south of the Tati River.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	49,500	22,000	22,000	22,000	22,000

SG05 Medium and Small Scale Mapping:

Such maps as exist of Botswana are due almost entirely to the Directorate of Overseas Surveys which has been carrying out mapping in Botswana since shortly after the Second World War. Most of these maps are unfortunately already out of date and there is need to replace them with up to date medium scale maps in the 1:125,000 and 1:50,000 series.

It is proposed that during the period 1970/75 contracts should be let for mapping of approximately 26 sheets at 1:250,000 and 34 sheets at 1:50,000. The mapping would be undertaken by contractors from the U.K. or South Africa in close collaboration with the Directorate of Overseas Surveys. The provision of this mapping is essential for general and detailed planning of various development projects.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	111,400	111,400	111,400	111,400	111,400
Recurrent	–	–	–	–	–

SG06 Primary and Secondary Levelling:

The establishment of precise levelling routes and the accurate determination of heights along such routes are necessary operations for the subsequent performance of numerous activities associated with development generally. Construction of dams, the determination of the most economical routes for pipelines, railways, height control for mapping projects and surveys of a similar nature require the existence of precise levels.

It is proposed that about 500 miles of levelling be put out to contract and that the work be undertaken in the course of two years. Departmental levelling activities will continue along selected routes in the eastern watershed.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	25,000	20,000	20,000		
Recurrent					

SG07 Master Development Plans:

There has arisen an urgent need for the preparation of long term comprehensive development plans for Lobatse Gaborone and Francistown. The growth rate of Gaborone has been such that the capital has outstripped the modest plans originally made for it, and there is need to prepare a master development plan to cater for its development for the next ten to fifteen years. In the North, the development of mineral resources is having a dramatic impact on the growth of Francistown, where equally urgent and complex town planning problems can only be solved in terms of a comprehensive development plan. Funds requested under this project will be used to employ consultants to prepare Master Development Plans for the three towns.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	52,000	50,000	50,000	–	–
Recurrent	–	–	–	–	–

Water Affairs

WB01 Borehole Maintenance Units:

These mobile self-contained units comprise a team of five men, vehicle, equipment and spares and are now incorporated into the general running of the Department of Water Affairs. They are employed upon the multifarious duties connected with borehole equipping and maintenance work, which is carried out in response to requests from other Government Departments, District Councils, syndicates and private users. The day to day expenditure is met from appropriate sources within the Ordinary Budget and are partly offset by revenues collected from non-Government borehole owners. It is planned to gradually ensure that revenue and expenditure on non-Government work equate. The original plan of having ten small maintenance bases, spread throughout the country, and two large workshops, has now been modified in the light of experience gained and the scheme now being implemented is based upon four regional bases at Lobatse, Gaborone, Palapye, Francistown, all of which are on the line of rail and also principal nodal points for roads spreading east and west of the railway. Three small bases are also being constructed at each of the following remote stations, Tshabong, Ghanzi, and Maun. Owing to the relatively good communications between Gaborone and the regional bases the original plan to develop a major workshop at Francistown has been abandoned. The Gaborone workshop will do all major repairs and heavy overhauls and its manager will also be responsible for the training activities of the Department. By centralising on Gaborone in this way it is clear that the number of regional stores and the size of their stocks can be reduced by maximizing the use made of rail services. The bulk of the expenditure necessary to complete these bases has now been made, but some R26,400 is needed over the next three years in order to further equip the bases, complete the fitting out of maintenance unit vehicles and to complete the gantries programme.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	15,600	5,400	5,400		
Recurrent	–	7,000	20,600	25,100	25,100

WB02 Water Branch Training:

This project has been transferred to the Ordinary Budget.

WB03 Water Development Planning:

Project completed.

WB04/05 Gaborone and Lobatse Water Supply:

In 1969 the Nuane Dam at Lobatse fell to below 25% of capacity, and it became clear that a major and coordinated programme would be needed to ensure continuity of the water supply. Accordingly, steps were taken to implement a crash programme of borehole development which would utilise ground water reserves at maximum efficiency until arrangements for the commencement of a major new surface supply could be completed. Consultants were engaged to evaluate the alternatives and to recommend a programme for waterworks expansion in both Gaborone and Lobatse which would be adequate to meet demand in the short and long terms.

It is now clear that a two-phase programme is needed. The first phase will include the construction of a pipeline from Gaborone to supply Lobatse, but it is planned to make this two-way to allow for the eventuality of a water shortage in Gaborone. It will also include the first part of an expansion of pipe, pumping, treatment, and storage capacity in the Capital; present projections of the demand for water indicate a seasonal peak demand in Gaborone of well over 3 m.g.d. by 1975, and construction of the pipeline and the expanded works at the Gaborone end must commence by late 1970 in order to ensure that demand in both Gaborone and Lobatse can be met by the time of the 1971 hot season. The programme of investment includes a provisional assessment of the storage, pumping and treatment capacity expansion needed in Lobatse but this situation is still under review. Phase two of the project will consist mainly of completion of the expansion in works required at Gaborone and will need to be implemented in the latter part of the Plan period.

Government also plans to create a new Water Utilities Corporation, complementary to the establishment of the Power Corporation which will take over responsibility for the operation and maintenance of water supplies in the two towns from the existing Gaborone Water and Electricity Unit. The pipeline and waterworks may be financed by funds from the International Development Association and the reticulation needed for the expansion of Gaborone has been provided for under project WB23. It is intended that revenue from water sales to the Corporation will be such as to cover all fixed and variable costs.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	531,000	1,210,600	53,000	229,300	269,000
Recurrent					

WB06 Mahalapye Dam:

See Project WB17.

WB07 Molepolole Dam:

See Project WB17.

WB08 Gaborone-Mochudi Pipeline:

See Project WB17.

WB09 Kanye Dam:

See Project WB17.

WB10 Madabe Pipeline:

Further investigations led to this project being discarded.

WB11 Minor Urban Water Supplies:

This scheme provides for minor improvements to Government operated water supplies where necessary. Most centres of population face serious difficulties in water supplies which require attention by linking up additional boreholes, constructing extra storage tanks and laying new pipes.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	15,445				
Recurrent		500	500	500	500

WB12 Water Storage and Reticulation:

Project completed.

WB13 Rural Surface Water Supply:

See Project WB17.

WB14 Borehole Equipment:

It is planned to continue this project for the foreseeable future albeit at a reduced level. The reduction stems from the fact that in the past some of these funds were used for boreholes pertaining solely to the activities of the Department of Water Affairs. This expenditure has now been absorbed into the Ordinary Budget. The annual sum to be expended in future is solely to cover institutional or departmental borehole equipping and does not in any way relate to public water supplies. The need in any one year is unpredictable but past experience has shown the planned figure to be sufficient for an adequate response to be made to calls for boreholes and the associated equipment. It is by means of this small sum that large amounts of abortive investigational work are avoided prior to the implementation of various development schemes in inaccessible parts of the country.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	6,000	6,000	6,000	6,000	6,000
Recurrent					

WB15 Water Branch Yard Headquarters, DWA:

The Headquarters offices of what was the Water Branch of the Ministry of Commerce, Industry and Water Affairs, and is now the Department of Water Affairs, has been moved to its new site under earlier stages of this project. The approved professional and technical establishment has been increased to enable the Department to meet its rapidly increasing work load, particularly in connection with major water supply schemes at Gaborone and Lobatse, the Shashi Complex and the administration of the Water Law. This situation and the decision to centralize heavy repair work in Gaborone has created the possibility indeed the necessity to further expand the workshop facilities in Gaborone to include a proper complement of relevant machinery and facilities for welding and blacksmith work. Further, as more and more boreholes and service connections are fitted with water meters the need to properly test and calibrate these meters has become pressing, thus it is planned to provide appropriate facilities, including tools and machines and a meter and chlorinator building in addition to office extensions and a store, construction of the latter having already been commenced during the 1969/70 financial year.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	15,600	–	–	–	–
Recurrent	–	4,700	4,700	4,700	5,000

WB16 Francistown Water Supply:

Provision is made under this project for the construction of new, and improvement of existing water supply facilities in Francistown. The need has arisen owing to the increasing emphasis being laid on the development of Francistown as a regional centre, not only for mining development taking place and anticipated in its environs, but also because Francistown is the most obvious area for industrial development of the 3 major towns along the line of rail. Neither Gaborone nor Lobatse are likely to be able to support heavy demands on their water supply in the foreseeable future. Planning of the water supply in Francistown is still at an early stage, and it remains to be seen how soon supplies from the Shashe dam will be needed to meet the growth of demand in the town. Existing groundwater supplies are estimated to be adequate for the time being, but many changes in the layout of the town, to cater for industrial development and the expansion of services, are envisaged, and consequently modifications and improvements to the reticulation system and associated works will be necessary. As in other centres, it is intended that the capital and operating costs of the Francistown

water supply will be fully identified and reflected in the tariffs charged to consumers.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	20,000	20,000	20,000	20,000	20,000
Recurrent	–	–	–	–	–

WB17 Township Water Supplies:

Under this project it is planned for Government to gradually take over and develop the water supply system in some twelve major centres. Underlying this plan is a basic notion concerning the viability of the exercise. In short this means that whilst Government will own and operate the supplies, it will bulk sell water at an economic price to District Councils who will recover these funds through a water rate. It will however be necessary for central government to maintain a higher level technical staff at these supply undertakings in order to ensure an adequate level of technical expertise. Additionally the engineering necessary to expand these supplies in response to a growing demand will be carried out by the Department of Water Affairs.

This is a large and important project and will take account of the possible need to build major dams at certain centres; such dams, when and if they are found necessary will be undertaken as separate development projects. Public water supplies in Botswana are generally very poor, and this results in substantial social diseconomies, a fundamental feature which must not be overlooked when the high costs of water development are considered, and attempts are being made to evaluate the true costs and benefits of a particular supply. The annual programme of work has been based on the need for a sustained level of work to be carried out annually, thus permitting the full benefits to be gained from training and retaining staff with valuable skills. On the recurrent account there will be an increase in Departmental staff but it is planned to ensure that all costs directly related to the provision or improvement of a given supply system will eventually be fully reflected in the price of the water sold.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	100,000	370,000	323,000	323,000	250,100
Recurrent	–	5,000	10,000	15,000	20,000

WB18 Selebi Temporary Water Supply:

As an integral part of studying the feasibility of providing infrastructural facilities to support the projected copper - nickel mine at Selebi-Pikwe, Government obtained the services of consultants, by means of British technical Assistance, to advise on the siting and planning of a township at Selebi-Pikwe, adjacent to the mine. They were also asked to advise on the feasibility and costs of providing a temporary water supply for the construction of the mine and township. Reports were made and studied by Government, and it became clear that work on the first phase of the temporary water supply would need to commence in advance of the likely starting date for construction of the mine and township. In order that the latter would not be delayed through lack of adequate water supplies, a request for finance for phase I of the water supply was accordingly framed and submitted to the British Government.

Phase I is to be based on well point abstraction from the deep sand of the Motloutse River bed over a length of 12 miles. The water will be pumped to a treatment works of 130,000 gallons per day nominal capacity sited some 7 miles from Selebi and will then be pumped to a 1½ million gallon prestressed concrete reservoir serving the township distribution system. Part of the clear water rising main will eventually be incorporated on the permanent system as will the storage reservoir, but other assets will after 1972 have to be disposed of by sale or be made available to the Department of Water Affairs to be used in other projects. Distribution piping has now been included in the estimates, and it is planned to include the second phase of the water supply in the application to the IBRD for a construction loan (see project ID01).

This project exists essentially to prevent delay in the commencement of mining, the largest prospective source of Government revenue in the near future. It is intended during the period of operation of the temporary water supply to structure tariffs so that revenue from water sales fully covers recurrent costs.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	181,000				
Recurrent		Self-financing			

WB19 Rural Water Teams:

During 1969 and in the past the Department of Water Affairs has been subjected to an increasing pressure of requests from District Councils for assistance with rural village water supplies. The help requested takes the form of technical expertise and guidance in estimates, design, ordering of materials and equipment and construction.

It is proposed to establish two teams to work full time on these problems, and some progress in doing so has been made during the 1969/70 financial year. Government will provide teams, transport and equipment but they would be seconded to District Councils to deal with specific problems as they arise, or to supervise work being done for the Councils

using materials, labour and transport provided by the latter. Both Councils and Water Department will benefit from the exercise in that it will facilitate communication of problems from grass roots level to the centre, and help to build up a national perspective of needs and problems in the Districts. The teams will also reduce wastage by improving standards of installation and construction and by reducing the time taken to do the work. It is envisaged that junior position on the teams might be filled by trainees in need of in-field experience.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	5,900				
Recurrent		17,500	20,000	20,000	20,00

WB20 Hydrological Service:

By early 1972 the United Nations Development Programme (Special Fund) Project, 'Surveys and Training for the Development of Water Resources and Agricultural Production will have, in large measure, terminated. Part of the project's Plan of Operations states that a primary aim is to ensure the satisfactory establishment of a national hydrological service which will then be incorporated into the normal activities of the Department of Water Affairs. In short this means that a group of competent staff will move from the project to the Department of Water Affairs. It is therefore planned to provide during fiscal year 1971/72 adequate accommodation and equipment to enable this transition to take place smoothly. At this time a significant increase in recurrent budget expenditure will take place but this is portrayed under the project ID02.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	20,400	5,000			
Recurrent		800	1,100	1,100	1,100

WB21 Okavango Development:

About nine and a half million acre foot of water flows annually into Botswana via the Okavango river. In a good year up to 5% of this water will reach the rivers (Thamalakane, Ngobe, and Boteti) lying to the south and east of the main deltaic complex and thus penetrate to the drier areas of northern Botswana. In a poor year little or no water leaves the Okavango swamps. The Okavango system is a vast inland delta covering some 6,500 square miles through which generally stable braided channels feed the perenial swamp area of 1,200 square miles and ultimately the outlet rivers. Vegetative blockages in the channels and to a lesser extent siltation provide a major impediment to flow and encourage swamp conditions and expansion with high evaporation and transpiration losses which so severely affect outflow. It is likely following recommendations made in a recent report by Sir Alexander Gibb and Partners that major development works and channel clearance will have to be carried out in the future if potentially large demands for water in northern Botswana are to be met. Tentative estimates show that the capital costs even on a small scale will be high and that recurrent costs will also be large. Providing however that users of this high cost water are forthcoming the planned developments will be viable. It is anticipated that De Beers will be willing to contribute finance to meet part of the cost of this project.

	1970/71	1971/72	1972/73	1973/74	1974/7
	R	R	R	R	R
Capital			400,000		
Recurrent				250,000	250,00

WB22 Botswana Agricultural College Water Supply:

The BAC site at Content Farm is shortly to be the host ground for two further developments, namely the Animal Health Training facilities and a Co-operative Development Centre. The present water supply, piped through from the northern end of the Gaborone distribution system has proved inadequate for present needs alone, mainly due to development in Gaborone itself giving rise to severe peak period water shortages, and also to friction losses and reduced pressures consequent upon the variation of pipe sizes in the supply line.

It is therefore planned to construct an elevated storage tank capable of providing satisfactory distribution flows and pressures, together with improvements to reticulation and other associated works. Projected increase in demand for water at the College is as follows:

1970	1971	1972	1973
50,000gpd.	80,000gpd.	95,000gpd.	107,000gpd.

It is anticipated that the flow of additional revenue to the Water Corporation as a result of this increased demand cover running and maintenance costs. The scheme will also eliminate the risk of jeopardising the operations of the Ministry of Agriculture Central Research Station and, indirectly, the Agricultural Extension Service, all of whose demonstrators are trained at BAC.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	52,980	–	–	–	–
Recurrent	–	–	–	–	–

WB23 Gaborone Water Reticulation:

Demand for Industrial land has proceeded apace during the last two years and it is now necessary to bring the second area set aside in Gaborone for development as an industrial extension into service. Sewerage and roads are to be constructed during 1970/71, and to co-ordinate the servicing, water reticulation works will be undertaken to supply another 42 plots.

Since it is not intended that Gaborone should attract industries or firms that are large water consumers, an extension of the six inch main presently supplying the existing industrial area is the only major change required; reticulation to the site can then be extended as needed.

Provision has also been made under this project for reticulating new areas in Gaborone as housing and commercial requirements in the capital expand. Recurrent costs will be met from revenue to the new Water Corporation.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	100,000	7 ,000	75,000	50,000	
Recurrent					

Weights and Measures

WM01 Weights and Measures:

Legislation is due to be enacted which requires all instruments of weight or measure used in commercial establishments in Botswana to be assized or re-assized regularly in accordance with a set of national standards. It is designed to prevent illegal practices and exploitation of the consumer by dishonest businessmen. There are at present over 2,000 business establishments in the country, and the rate of commercial and industrial development is showing an upward trend; this situation presents a number of problems, one being price control, which are practically impossible to review without weights and measures standardisation and an Inspectorate to deal with them.

Government is currently contemplating introduction of the metric system of weights and measures. This kind of change takes a long time, especially in a country with communications difficulties, but in view of the fact that the U.K. and South Africa are going ahead with metrication, both countries with which Botswana has important economic and trade links, it cannot be delayed any longer. The relevant organisation to deal with this problem and the one of standardisation is a Weights and Measures Division, which it is proposed would be set up within the Ministry of Commerce, Industry, and Water Affairs.

The controller of the Division will have to be a senior technical officer, experienced in weights and measures control and preferably an expert in metrication. Two experienced assize officers will be required as his assistants, and the Division will also need inspectors, secretarial and clerical staff and driver. Office accommodation, housing, vehicles, camping and assize equipment, two inspection kits and a set of national standards will be needed.

Combination of the twin needs for standardised weights and measures and metrication under one department will give rise to considerable savings. Establishment of standardised weights and measures throughout the country will benefit the consumer and curb fraudulent dealings, whilst professional supervision of the introduction of the metric system will minimise possible expensive errors.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	20,000	–	–	–	–
Recurrent	–	22,000	22,000	22,000	22,000

Wildlife and National Parks

GA01 Wildlife Conservation:

Botswana's extensive wildlife, population has great social, economic, and aesthetic value. It is of great importance as a source of food, hides and skins, and as a basis for the tourist industry. Since, in certain parts of the country, Game has been over-exploited, it has proved essential for the staff of the responsible Department to be expanded to cover all important game areas, manage, and adequately protect this valuable resource. During the three year period 1967/68 to 1969/70 Wardens and supporting staff have been posted to all areas except the Tuli Block and South Eastern Botswana. To complete the cover it will be necessary to appoint staff for these two areas in the next two years. The Fauna Conservation Proclamation has been carefully amended to provide the machinery for improved control of the wildlife industry and surveys are being undertaken to determine the effects of general development on wildlife and their habitats, particularly in areas where there has been a marked decline.

It is conservatively estimated that local people eat game meat worth R900,000 per annum, which consequently releases a like amount of cattle meat for export and sale on the world market. Local industries, including safari companies, tanning, taxidemy and cottage skin industries, have a turnover estimated at more than R1.2 million. Government Revenue benefits directly in the form of game licences, concession and Hunting Blocks fees, Entrance fees to National Parks etc. as well as from export duty on game trophies. It also benefits indirectly from individual and company tax, increased sales of petrol, liquor, minor licences and fees. The initial expansion of the Department of Wildlife and National Parks, with increased staff, transport, housing, offices and equipment has already proved effective in enforcing the law in remoter areas and in securing a considerable net surplus of revenue over expenditure on its operations. Staff to supervise the two remaining areas will further improve its ability to regulate utilisation of one of Botswana's most valuable and vulnerable resources.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	15,299	11,277			
Recurrent		6,300	7,300	7,500	7,800

GA02 Development of National Parks:

The Chobe and other proposed National Parks and Game Reserves are the main tourist attraction in Botswana. The Chobe, with its extensive range of veld types and its wide variety of wildlife, is probably one of the most attractive game areas in Africa. It is within ninety minutes of Victoria Falls, linked by a good gravel road and is served by regular flights. It is in an excellent position to attract an increasing number of tourists and this potential will be increased by the intended link up of the Chobe with other sanctuaries. These include the Moremi Wildlife Reserve, the Okavango Swamps, Lake Ngami, Nxai Pan and the Makarikari Pans, which together will provide an attractive circular tour.

The proposed development of the National Parks depends upon the provision of adequate tourist accommodation, and negotiations have started with a group of investors interested in building a 100-bed tourist lodge to serve these areas. Work on access roads and two Game Scout's Camps must be started in Makarikari and Nxai Pan. In the Chobe, 90 miles of Southern and Eastern boundaries need to be cleared marked and graded as tracks. Game Scout's Camps and tracks are also needed in Moremi, Tsotsoroga, Savuti, Ngoma and Madabe. Roads and airstrips, sufficient staff to service the Parks and allowance for appropriate biological management, including such important items as the correct provision of artificial water and protection from unplanned veld fires are necessary. In addition, a light aircraft, a British Beagle for instance, would be of the utmost value in efficient administration and management of the Parks and Reserves.

In 1968/69 this project was expanded to embrace the Moremi Reserve and to link it to the Chobe National Park. The project is now phased from 1970/71 until 1974/75, in which time it is planned to develop all the new Parks and Reserves. Tourist accommodation for the Chobe National Park is to be supplied initially by the building of a hundred bed Lodge by private investment. The Moremi Reserve is to be served by a Lodge on Khwai River (recently opened) and existing accommodation near Maun. Negotiations on the building of a large tourist Lodge, to service the Makarikari and Nxai Pan areas, have recently commenced with one of the existing Safari Companies and a group of investors.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	33,350	26,000	22,000	7,400	6,000
Recurrent		11,600	14,600	16,600	18,600

GA03 Wildlife Conservation Education:

During the last decade there has been a marked decline in wildlife populations, attributable mainly to two factors: drought, and over-utilisation by local people, much of it illegal. The years of drought from 1958 to 1966 and Foot-and-Mouth disease forced many people to continue to exploit the wildlife, turning from hunting for subsistence purposes to hunting for commercial gain.

In view of the multiple values of wildlife to Botswana, steps must be taken during the next five years to instigate a Wildlife Conservation Education programme. The main effort would be directed at District Council and Tribal Authorities, Teacher Training Colleges, Secondary and selected Primary Schools, Boy Scouts and Youth Clubs, but would also include a training programme for existing and new Departmental staff, guides for Parks, Reserves, and Hunting Parties, counterpart staff who will take over the project, and the establishment of a small Wildlife Education Centre in conjunction with the National Museum.

Applications to a Foundation for Wildlife Conservation for financial and technical assistance have already been made, and it is hoped that two experts will arrive next year to initiate the education programme from mobile units with slide shows, lectures, and training. Much has been done to protect Wildlife by enforcing penalties and effective policing, but teaching people the value and benefits of thriving populations of wildlife is an essential "preventative" counterpart to the "cure". The wildlife of Botswana is one of the country's most valuable natural resources; undisciplined exploitation of it will eliminate important species, deprive a considerable proportion of the human population of a valuable source of proteins, result in loss of revenue to Government and Councils from hunting licence fees and have an adverse effect on Hunting and Photographic Safari Companies, an important core of the nascent tourist industry, not to mention those firms investing directly in tourist accommodation and facilities.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R.	R	R	R	R
Capital	14,900	1,000	–	–	–
Recurrent	–	24,200	24,500	24,500	24,500

GA04 Road Equipment:

During 1969 the South African Wildlife Foundation financed the purchase of a road-building unit for the Department of Wildlife and National Parks, to be used as part of the programme to open up and develop proclaimed Park and Reserve areas. The unit will be employed principally in the Moremi, but also in other areas, to make fire-breaks, patrol and access roads, and to facilitate the opening up of the areas for tourism. Financial provision has been made in the new plan period to complete purchase of certain items of essential equipment.

	1970/71	1971/72	1972/73	1973/74	1974/75
	R	R	R	R	R
Capital	500	–	–	–	–
Recurrent	–	–	–	–	–

CAPITAL EXPENDITURE ON DEVELOPMENT PROJECTS

Project No.	*Project Title*	1970/71	1971/72	1972/73	1973/74	1974/75
		R	R	R	R	R
	Agriculture					
AC 01	Expansion of Botswana Agricultural College	91,600	137,700	57,700	–	–
AD 02	Expansion of Extension Services	50,000	64,500	35,000	40,000	45,000
AD 06	Agricultural Statistics	21,362	7,000	19,000	20,000	8,000
AD 07	Demonstration Ranches	9,960	–	–	–	–
AD 08	Central Research Station	15,550	–	40,000	–	–
AD 11	Pilot Irrigation Settlement	30,000	15,000	15,000	–	–
AD 15	Mobile Animal Husbandry Teams	28,830	–	45,900	18,000	18,000
AD 18	Grain Storage	32,838	–	–	–	–
AD 19	Entomological Research	12,705	–	–	–	–
AD 22	Quelea Control	13,215	10,348	–	–	–
AD 25	Mopane Veld Research Station	17,965	–	–	–	–
AD 27	Small Dam Construction	29,440	13,431	–	–	–
AE 01	Rural Training Centre	74,800	–	68,000	–	70,000
AE 02	Development of Fisheries in Southern Botswana	7,025	4,092	4,200	–	–
AH 01	Improvement of Animal Health Services	6,600	12,000	28,000	28,000	28,000
AH 02	Rural Abattoirs	6,300	5,700	12,000	–	–
AH 03	Animal Health Service Centres	71,252	45,432	49,167	–	–
AH 04	Vakoranga/Tuli Circle Fence	–	–	49,900	–	–
AH 05	Ghanzi Quarantine Camp	–	–	–	40,000	–
AH 06	Performance Testing	–	15,000	10,000	10,000	–
AP 01	Animal Husbandry Field Investigations	20,500	18,500	–	–	–
AP 02	Animal Husbandry Research Station	–	15,000	10,000	–	–
AP 03	Livestock Marketing Auction Kraals	–	30,000	30,000	30,000	30,000
AP 04	Sunnyside Farm Improvements	7,040	–	–	–	–
AP 05	Evaluation of Tswana Herd	102,498	42,228	24,938	–	–
LU 01	IBRD Livestock Settlement Scheme (Phase I)	–	561,000	513,000	492,000	100,000
LU 02	IBRD Livestock Settlement Scheme (Phase II)	–	–	–	600,000	600,000
	Community Development					
CM 03	Youth Training	33,490	27,100	21,100	9,500	–
CM 04	Home Economics	24,500	1,000	1,000	1,000	1,000
CM 06	Handicrafts	32,545	10,300	3,920	1,600	1,000
CM 07	Training for Community Development Assistants	35,500	17,500	17,500	17,500	17,500
	Co-operative Division					
CO 02	Co-operative Development Centre	162,837	–	–	–	–
	Development Planning					
DP 01	Household Income & Expenditure Survey	6,616	–	–	–	–
DP 02	Population Census	41,590	61,910	13,500	–	–
DP 03	Government Bond Issue	25,500	–	–	–	–
	Education					
ED 01	Mater Spei Secondary School	98,995	11,000	24,800	–	–
ED 02	Swaneng Hill School	–	11,985	–	–	–
ED 03	Moeding College	88,125	37,635	59,600	–	–
ED 04	St. Joseph's College	11,635	61,530	–	–	–
ED 05	Kgari Sechele Secondary School	115,995	–	–	60,760	–
ED 06	Molefi Secondary School	97,995	–	60,760	–	–
ED 07	Seepapitso Secondary School	97,995	–	–	60,760	–
ED 08	Francistown Teacher Training College	–	16,180	–	–	–
ED 09	Lobatse Teacher Training College	18,000	10,000	–	–	–
ED 11	Primary School Equipment	30,000	30,000	30,000	30,000	30,000
ED 15	Correspondence College	–	50,000	20,000	10,000	10,000
ED 16	Shashi River School	102,404	91,245	52,305	12,513	–
ED 17	Lobatse Secondary School	62,500	57,650	53,150	–	–
ED 18	Primary School Improvement	51,200	43,200	43,200	43,200	43,200
ED 19	Gaborone Secondary School	63,237	12,485	–	–	–
ED 20	Provision of Library Books to Secondary Schools and T.T.C.'s	26,500	26,000	27,000	30,000	33,000
ED 21, 23	Home Economics – Lobatse T.T.C.	37,000	–	–	–	–
ED 22	Moeng College	50,850	26,697	–	–	–
ED 24	Maun Secondary School	103,000	68,480	80,707	64,731	14,114
ED 25	Mahalapye Secondary School	148,510	79,090	90,750	57,200	22,200
ED 26	Totome Secondary School	130,000	110,000	112,000	82,010	68,350
ED 27	Agricultural Instruction	12,000	12,000	12,000	–	–
ED 28	Serowe Teachers Training College	18,000	–	–	–	–
ED 29	Vocational Training Centre	89,250	227,766	3,570	–	–
LS 02	Development of Botswana Training Centre and University Centre	4,700	549,220	332,020	–	–

Project No.	*Project Title*	1970/71 R	1971/72 R	1972/73 R	1973/74 R	1974/75 R
	Department of Wildlife and National Parks					
GA 01	Wildlife Conservation	15,299	11,277	–	–	–
GA 02	Development of National Parks	33,350	26,000	22,000	7,400	6,000
GA 03	Wildlife Conservation Education	14,900	1,000	–	–	–
GA 04	Road Equipment	500	–	–	–	–
	Government Printer					
GP 01	Printing Equipment	1,000	–	–	–	–
GP 02	Office Equipment Maintenance	5,000	–	–	–	–
	Geological Survey					
GS 01	Mineral Exploration	48,000	28,150	10,250	3,800	100
GS 02	Underground Water Development	82,880	116,320	–	18,000	27,000
GS 03	Underground Water Research Project	46,932	1,000	1,000	10,700	1,000
	Home Affairs					
HA 02	National Museum	12,000	5,000	37,000	5,000	5,000
HA 06	National Library Service	36,680	74,000	72,723	87,000	87,000
HA 07	Improvements to Existing Prisons	21,916	2,000	2,000	2,000	2,000
HA 08	First Offenders Farm	8,588	4,000	4,000	4,000	20,588
	Information and Broadcasting					
IN 04	Expansion of Broadcasting Services	–	185,000	56,000	–	–
	Interdepartmental Projects					
ID 01	Shashi Complex	1,940,000	8,350,000	15,000,000	10,250	–
ID 02	Surveys and Training	180,584	131,250	13,250	–	–
ID 03	Botswana Development Corporation	341,350	203,120	73,120	–	–
ID 04	Customs and Immigration Control	263,556	–	–	–	–
	Local Government and Lands					
LG 04	Bushmen Training & Settlement Scheme	28,840	14,590	11,550	17,050	6,000
LG 05	Housing Corporation	147,425	82,420	–	–	–
	Department of Medical Services					
MD 01	Gaborone Hospital	65,558	74,923	24,852	29,923	29,923
MD 02	Serowe Hospital	23,526	29,000	42,262	71,742	33,047
MD 03	Mahalapye Hospital	22,150	42,034	50,925	24,875	26,565
MD 04	Lobatse Hospital and Mental Hospital	31,500	60,175	33,537	60,175	58,590
MD 07	Maun Hospital	38,340	53,235	–	–	–
MD 08	Kasane Health Centre	2,600	–	–	–	–
MD 13	Tsabong Health Centre	2,950	3,600	8,100	–	–
MD 14	Pilikwe Health Centre	1,800	6,900	–	–	–
MD 15	Palapye Health Centre	–	26,650	13,235	16,235	6,000
MD 16	Central Training Unit	141,750	116,250	85,735	–	–
MD 17	Medical Equipment	15,000	15,000	15,000	15,000	15,000
MD 18	Rakops Health Centre	5,400	–	–	–	–
	National Development Bank					
ND 01	Borehole Repayment Programme	150,000	200,000	–	–	–
ND 02 & 03	Agricultural Credit	50,000	75,000	100,000	80,000	75,000
ND 05	Commercial and Industrial Credit	75,000	100,000	125,000	150,000	175,000
	Police Department					
PD 01	Police Development	148,260	109,700	82,000	19,000	9,000
	Posts and Telecommunications					
PT 13	Carrier Transmission Circuits	5,400	65,000	25,600	17,000	17,000
PT 14	Telephone Exchange Equipment	–	350,000	–	30,000	120,000
PT 15	New Telephone Lines	24,000	–	–	–	–
PT 16	Telegraph Equipment	22,000	–	–	–	–
PT 17	Radio Communications Equipment	–	100,000	–	–	–
PT 18	Underground Cabling	22,500	107,500	30,000	50,000	40,000
PT 19	Post Offices & Exchange Buildings	–	30,000	12,000	18,000	12,000
	Public Works					
PW 01	Gaborone – Lobatse Road	100,000	1,000,000	500,000	500,000	500,000
PW 02	Gaborone Sewerage	200,300	178,500	186,700	211,400	217,000
PW 03	Township Roads	31,000	51,000	40,000	–	–
PW 06	North-South Road	365,000	650,000	300,000	–	600,000

Project No.	Project Title	1970/71	1971/72	1972/73	1973/74	1974/75
		R	R	R	R	R
PW 07	Main Road Improvements	–	120,000	220,000	100,000	100,000
PW 10	Road Depots	52,000	40,000	–	–	–
PW 11	Airfields Improvements	45,000	25,000	85,000	–	–
PW 12	Gaborone Airfield	–	83,000	82,000	–	292,000
PW 13	Mechanical Workshops	17,300	7,000	–	–	–
PW 14	Rural Power Supplies	–	100,000	50,000	90,000	–
PW 15	Housing	1,667,000	1,500,000	1,200,000	1,000,000	1,000,000
PW 16	Government Buildings	265,630	350,370	100,000	–	300,000
PW 17	Meteorological Equipment	39,400	32,450	27,650	24,750	17,750
PW 17	Meteorological Stations	13,195	–	–	–	–
PW 18	Nata-Kazungula Road	–	900,000	900,000	–	–
PW 20	Gaborone Water & Electricity Unit	900,000	688,000	140,000	166,000	344,000
PW 22	Ghanzi-Kanye Road	–	250,000	400,000	250,000	–
PW 23	Francistown-Nata Road	–	–	800,000	–	–
PW 24	Kazungula-Ngoma Road	–	600,000	–	–	–
PW 25	Francistown-Orapa Road	900,000	–	–	–	–
PW 26	Rural Sewerage – Government Properties	79,350	–	–	–	–
PW 27	Township Surface Water Drainage	27,000	65,000	30,000	60,000	28,000
PW 28	Selebi-Pikwe Airfield	–	63,000	–	102,000	–
	Surveys and Lands					
SG 02	Survey Equipment	16,213	–	–	–	–
SG 03	Town and General Mapping	20,700	20,700	20,000	20,700	20,700
SG 04	Township Surveys	49,500	22,000	22,000	22,000	22,000
SG 05	Medium & Small Scale Mapping	111,400	111,400	111,400	111,400	111,400
SG 06	Primary and Secondary Levelling	25,000	20,000	20,000	–	–
SG 07	Master Development Plans	52,000	50,000	50,000	–	–
	Veterinary Department					
VE 02	Disease Control Fences	–	–	45,000	–	–
VE 03/05	Livestock Improvement Subsidy Scheme	7,500	–	–	–	–
VE 06	Artificial Insemination	123,745	105,200	–	120,000	120,000
VE 08	Hides and Skins Improvement	–	120,000	35,000	25,000	–
VE 10	Tapeworm Eradication	3,300	–	–	–	–
VE 16	Veterinary Diagnostic Laboratory	7,000	–	–	–	–
VE 22	Odiakwe Quarantine Camp	3,000	–	–	–	–
	Water Affairs					
WB 01	Borehole Maintenance Units	15,600	5,400	5,400	–	–
WB 04/05	Gaborone and Lobatse Water Supply	531,000	1,210,600	53,000	229,300	269,000
WB 11	Minor Urban Water Supplies	15,455	–	–	–	–
WB 14	Borehole Equipment	6,000	6,000	6,000	6,000	6,000
WB 15	Water Branch Yard – Headquarters DWA	15,600	–	–	–	–
WB 16	Francistown Water Supply	20,000	20,000	20,000	20,000	20,000
WB 17	Township Water Supplies	100,000	370,000	323,000	323,000	250,100
WB 18	Selebi Temporary Water Supply	181,000	–	–	–	–
WB 19	Rural Water Teams	5,900	–	–	–	–
WB 20	Hydrological Service	20,400	5,000	–	–	–
WB 21	Okavango Development	–	–	400,000	–	–
WB 22	Botswana Agricultural College Water Supply	52,980	–	–	–	–
WB 23	Gaborone Water Reticulation	100,000	75,000	75,000	50,000	–
	Weights and Measures Division					
WM 01	Weights and Measures	20,000	–	–	–	–

RECURRENT EXPENDITURE RESULTING FROM DEVELOPMENT PROJECTS

Project No.	*Project Title*	1970/71 R	1971/72 R	1972/73 R	1973/74 R	1974/75 R
	Agriculture					
AC 01	Expansion of Botswana Agricultural College	–	5,000	30,000	35,000	35,000
AD 02	Expansion of Extension Services	–	25,000	50,000	75,000	100,000
AD 07	Demonstration Ranches	–	2,900	3,500	5,500	5,500
AD 08	Central Research Station	–	–	–	10,000	10,000
AD 11	Pilot Irrigation Settlement	–	–	–	5,000	5,000
AD 15	Mobile Animal Husbandry Teams	–	9,000	9,500	9,500	9,500
AD 18	Grain Storage	–	14,000	15,000	15,000	15,000
AD 19	Entomological Research	–	9,000	10,000	10,000	10,000
AD 22	Quelea Control	–	–	5,000	6,000	6,000
AD 25	Mopane Veld Research Station	–	3,000	3,500	4,000	4,000
AD 27	Small Dam Construction	–	–	13,000	14,000	14,000
AE 01	Rural Training Centres	–	17,000	17,000	34,000	34,000
AE 02	Development of Fisheries in Southern Botswana	–	–	–	4,300	4,300
AH 01	Improvement of Animal Health Services	–	–	3,000	10,000	20,000
AH 03	Animal Health Service Centres	–	13,700	23,500	33,600	34,800
AH 04	Vakoranga/Tuli Circle Fence	–	–	–	1,000	1,500
AH 05	Ghanzi Quarantine Camp	–	–	–	–	3,000
AH 06	Performance Testing	–	–	–	–	10,000
AP 01	Animal Husbandry Field Investigations	–	2,500	3,000	3,000	4,000
AP 02	Animal Husbandry Research Station	–	–	1,000	1,000	1,500
AP 04	Sunnyside Farm Improvements	–	300	300	300	300
AP 05	Evaluation of Tswana Herd	–	–	–	3,000	1,000
	Community Development					
CM 03	Youth Training Programme	–	2,700	3,800	3,900	3,900
CM 04	Home Economics	–	4,200	4,200	4,200	4,200
CM 06	Botswana Handicrafts	–	4,800	5,600	5,700	5,700
CM 07	Training for Community Development Assistants	–	13,300	26,500	39,700	53,000
	Co-operative Division					
CO 02	Co-operative Development Centre	–	3,300	3,500	3,500	3,500
	Education					
ED 01	Mater Spei Secondary School	–	8,500	8,700	15,800	20,500
ED 02	Swaneng Hill School	–	41,500	52,800	52,800	52,800
ED 03	Moeding College	–	11,800	23,700	35,700	40,400
ED 04	St. Joseph's College	–	12,400	22,300	26,900	26,900
ED 05	Kgari Sechele Secondary School	–	14,200	14,200	26,500	27,100
ED 06	Molefi Secondary School	–	14,200	26,500	39,400	39,400
ED 07	Seepapitso Secondary School	–	6,600	6,600	18,900	19,500
ED 08	Francistown T.T.C.	–	9,700	14,600	14,600	14,600
ED 09	Lobatse T.T.C.	–	500	600	600	600
ED 15	Correspondence College	–	20,000	35,000	50,000	65,000
ED 16	Shashi River School	–	24,400	32,900	44,900	44,900
ED 17	Lobatse Secondary School	–	24,400	36,000	36,000	48,500
ED 19	Gaborone Secondary School	–	6,400	6,600	6,600	6,600
ED 20	Provision of Library Books Secondary Schools & Teacher Training Colleges	–	13,700	22,900	37,600	53,500
ED 21/23	Home Economics – Lobatse T.T.C.	–	12,400	12,400	12,400	12,400
ED 22	Moeng College	–	5,000	5,600	5,600	5,600
ED 24	Maun Secondary School	–	24,500	46,400	59,300	71,900
ED 25	Mahalapye Secondary School	–	26,100	36,500	44,100	56,100
ED 26	Totome Secondary School	–	18,200	42,000	63,600	80,100
ED 27	Agricultural Instruction	–	7,300	11,500	11,500	11,500
ED 28	Serowe T.T.C.	–	500	500	500	500
ED 29	Vocational Training Centre	–	15,000	25,000	30,000	30,000
LS 02	Development of Botswana Training Centre and University Centre	–	148,900	262,300	268,200	274,000
	Department of Wildlife and National Parks					
GA 01	Wildlife Conservation	–	6,300	7,300	7,500	7,800
GA 02	Development of National Parks	–	11,600	14,600	16,600	18,600
GA 03	Wildlife Conservation Education	–	24,200	24,500	24,500	24,500
	Government Printer					
GP 02	Office Equipment Maintenance	–	7,000	7,000	7,000	7,000

Project No.	Project Title	1970/71	1971/72	1972/73	1973/74	1974/75
		R	R	R	R	R
	Geological Survey					
GS 01	Mineral Exploration	–	64,600	90,600	109,200	195,000
GS 02	Underground Water Development	–	45,000	45,500	45,900	46,400
GS 03	Underground Water Research Project	–	4,100	12,400	12,400	12,400
	Home Affairs					
HA 02	National Museum	–	–	–	500	500
HA 06	National Library Service	–	10,600	18,500	31,600	47,400
HA 07	Improvement To Existing Prisons	–	–	–	–	27,400
HA 08	First Offenders Farm	–	5,400	5,700	6,000	6,400
	Inter-Departmental Projects					
ID 01	Shashi Complex	–	78,000	109,000	282,000	308,000
ID 02	Surveys and Training	–	–	30,000	60,000	70,000
ID 04	Customs and Immigration Control	–	55,500	59,900	62,900	66,100
	Information and Broadcasting					
IN 04	Expansion of Broadcasting Services	–	500	3,700	3,700	4,800
	Local Government and Lands					
LG 04	Bushmen Training and Settlement	–	13,900	21,700	7,400	7,600
	Department of Medical Services					
MD 01	Gaborone Hospital	–	53,600	80,000	99,200	123,700
MD 02	Serowe Hospital	–	20,600	24,500	37,300	39,800
MD 03	Mahalapye Hospital	–	23,700	28,200	32,400	46,500
MD 04	Lobatse Hospital and Mental Hospital	–	24,900	45,900	53,300	73,000
MD 07	Maun Hospital	–	9,200	23,800	23,900	25,300
MD 13	Tsabong Health Centre	–	–	–	1,000	1,100
MD 14	Pilikwe Health Centre	–	–	500	500	600
MD 15	Palapye Health Centre	–	2,200	2,900	3,500	4,800
MD 16	Central Training Unit	–	13,800	14,000	14,500	15,000
MD 18	Rakops Health Centre	–	500	600	600	600
	Police Department					
PD 01	Police Development	–	6,500	14,000	19,000	24,000
	Posts and Telecommunications					
PT 13	Carrier Transmission Circuits	1,000	1,500	1,900	2,200	
PT 15	New Telephone Lines	300	300	1,300	1,300	
PT 16	Telegraph Equipment	200	200	200	200	
PT 17	Radio Communications Equipment		1,000	1,000	1,000	
PT 19	Post Offices and Exchange Buildings	1,000	4,000	5,500	7,000	
	Public Works					
PW 03	Township Roads	1,000	2,000	2,250	2,500	
PW 10	Road Depots	1,000	2,000	2,000	2,000	
PW 11	Airfields Improvement	2,000	2,000	2,500	2,500	
PW 13	Mechanical Workshops	400	700	700	700	
PW 16	Government Buildings	4,500	6,500	8,500	8,500	
PW 17	Meteorological Equipment	2,000	2,000	2,500	2,500	
PW 17	Meteorological Stations	300	300	300	300	
PW 18	Nata-Kazungula Road		8,000	40,000	40,000	
PW 22	Ghanzi-Kanye Road		8,000	20,000	40,000	
PW 23	Francistown-Nata Road		10,000	20,000	20,000	
PW 25	Francistown-Orapa Road					
PW 28	Selebi-Pikwe Airfield	5,000	5,000	5,000		
	Veterinary Department					
VE 02	Disease Control Fences		27,800	500	500	
VE 06	Artificial Insemination Scheme		27,800	60,000	60,000	
VE 08	Hides and Skin Improvement				35,000	
VE 16	Veterinary Diagnostic Laboratory	100	100	100	100	

Project No.	*Project Title*	1970/71	1971/72	1972/73	1973/74	1974/75
		R	R	R	R	R
	Water Branch					
WB 01	Borehole Maintenance Units	–	7,000	20,600	25,100	25,100
WB 11	Minor Urban Water Supplies	–	500	500	500	500
WB 15	Water Branch Yard Headquarters DWA	–	4,700	4,700	4,700	5,000
WB 17	Township Water Supplies	–	5,000	10,000	15,000	20,000
WB 19	Rural Water Teams	–	17,500	20,000	20,000	20,000
WB 20	Hydrological Service	–	800	1,100	1,100	1,100
WB 21	Okavango Development	–	–	–	250,000	250,000
	Weights and Measures Division					
WM 01	Weights and Measures	–	22,000	22,000	22,000	22,000